

COMMONWEALTH CO-OPERATION IN OPEN LEARNING

Background Papers



Commonwealth Secretariat

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London SW1Y 5HX

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Printed and published by
The Commonwealth Secretariat

May be purchased from
Commonwealth Secretariat Publications
Marlborough House
London SW1Y 5HX

ISBN 0 85092 325 5

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PREFACE

In 1986 the British government agreed to fund research on Commonwealth co-operation in open learning. The research contract was awarded to the Council for Educational Technology with the International Extension College. The aim of the research project was to help the Commonwealth Secretariat to respond to a request by Heads of Government that it should explore the scope for Commonwealth collaboration in distance education. Subsequently a group was established under the Chairmanship of Lord Briggs which put forward proposals.

There were two outcomes from the ODA - funded research work. The first was a report, Commonwealth Co-operation in Open Learning, which has been published by the Commonwealth Secretariat. The second was a collection of background papers which are reprinted in this volume. They were of considerable value both to the research team in preparing their general report, and beyond that to the Briggs group and the Secretariat in developing plans for Commonwealth co-operation. We thought that they merited wider distribution and, with the aid of funds from the Economic Development Institute of the World Bank, have now been able to prepare them in a form for publication.

It should be noted that the papers generally represent the state of developments in late 1986 and early 1987. It has not been possible to update them further since they were written. We hope that this publication will be of value to governments, and to all those concerned with distance education, in universities colleges or elsewhere, both within the Commonwealth and beyond.

The Commonwealth Secretariat wishes to put on record its sincere appreciation to the British Overseas Development Administration for its generous financial sponsorship of this work, to the research team from CET and IEC which carried out the studies and surveys, and to the Economic Development Institute for its assistance with publication.

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PAPER 1

DISTANCE EDUCATION IN AFRICA

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CHAPTER ONE

DIGEST

The subject of this paper is the experience of distance education in the Commonwealth countries of Africa. Their educational development, however, is not essentially different from that of the rest of the continent. Nor is their experience of distance education. Though most of the examples quoted are from the countries of the Commonwealth, there are occasional references to such developments in other countries as are thought to be particularly relevant to them.

The paper starts with a brief review of educational patterns of development in Africa as a whole. It goes on to trace the historical development of distance education programmes, particularly in Commonwealth countries, over the past two decades, and to pick out the main trends which have emerged. The first section ends with an analysis of the major problems it has faced and the gaps in its provision. The second section examines the experience of co-operation in distance education in Africa. It suggests, on the basis of this analysis, and of the conclusions of the first section, a framework for further and more fruitful co-operation in distance education between African countries as a whole, and, in particular, between the countries of the Commonwealth within Africa and, in a few respects, between Africa and the rest of the Commonwealth.

1.0 PATTERNS OF DEVELOPMENT

1.1 General Trends in Educational Development in Africa: Priorities, Needs and Problems

Most of the Commonwealth countries in Africa gained independence from Britain in the 1960's; only Zimbabwe was nearly 20 years behind. The educational pre-occupation in the immediate post-independence period of these states was to expand their base, and to ensure that more children could go to school. All the countries were committed to universal primary education (UPE) by 1980 in accordance with the Addis Ababa agreement of 1961. The most pressing demand, however, was to expand the number of places available at the secondary level so as to increase the pool of potential middle-level manpower available either for direct recruitment into the civil service or for further training. Requirements for high level manpower were met by establishing universities and polytechnics, and by sending an increasing number of their nationals abroad for further education and training, though this trend has begun to be reversed during the 1980s.

Commonwealth countries in Africa, in their attempt to achieve their educational goals of UPE, expanded secondary education and created institutions of higher learning. As a result they were soon spending an inordinate proportion of their recurrent budgets on education, ranging from 10% to 23%.

The most widespread result of this commitment to education has been the unprecedented physical expansion of education at primary level. Today, with the exception of one or two countries, the gross enrolment rate is very high, showing that most countries have reached or are about to reach UPE. The participation of women is about half of the total enrolment in nearly all the Commonwealth countries, (see table 1).

Secondary education, which in many countries, includes vocational, technical education and teacher training, has also made impressive progress. However, the expansion has not been able to keep pace with the ever growing demand for secondary school places which comes as a result of the expansion of primary education. The gross enrolment rate at this level varies markedly from country to country ranging from as low as 3% and 4% in Tanzania and Malawi to as high as 51% in Mauritius. However, for most countries, it is near or just above 20%.

All the Commonwealth countries have today more than one institution of higher education, either universities or polytechnics. Most of these have been developed in the post independence period. The gross participation rate at the tertiary level, however, is below 1%, which is miniscule by any standard. As a result, all the countries still fall far short of meeting their high level manpower targets, as is evident from the continuing need to recruit more expatriate staff, though there is evidence that this is now beginning to fall.

Impressive as this growth has been, it has various limitations which are outlined below:-

1. Despite the rapid numerical growth in enrolment at secondary and tertiary level, countries have not been able to cope with the demand for even more places. This is caused by the huge increase in the number of children completing primary education. As a result, the proportion of school leavers finding places in secondary school is declining. In Zambia, for instance, this has gone from as high as 31% in the early years of independence to around 20% in 1983. An important exception to this, as in other trends, is Zimbabwe. There, after independence in 1980, there was a simultaneous commitment to universal primary education and to universal, or near universal, lower secondary education. In 1985, over 80% of primary school leavers found places in secondary school. In general, however, educational expansion has a rolling effect: the expansion of secondary schools also brings more pressure for places at the tertiary level. Secondary and tertiary level education are expensive to establish and sustain. Many countries have come to realise that their economies cannot cope with continued expansion without severely undermining other services. Such constraints also work backwards: because places are limited at tertiary level, it is not possible to produce enough teachers to staff the secondary schools. The high cost of providing such services, moreover, combined with the lack of job opportunities to absorb secondary level graduates, has made some countries hesitate about further expansion at this stage.

TABLE 1

Gross Participation rate by level (1983)

COUNTRY	PRIMARY		SECONDARY		TERTIARY	COMMENT
	Enrolment as gross % of total age group	% of females in total enrolment	Enrolment as gross % of total age group	% of females in total enrolment		
Botswana	96	53	21	54	1.6	
Gambia	68	38	19	31	-	
Ghana	79	44	38	37	-	
Kenya	100	48	19	40	0.9	
Lesotho	110	57	19	60	-	
Malawi	65	42	4	29	0.4	
Mauritius	112	49	51	47	0.6	
Nigeria	98	-	-	-	2.5	1981 figures
Sierra Leone	45	-	14	-	0.6	1980 figures
Swaziland	111	50	43	50	-	
Uganda	57	43	8	33	0.6	1982 figures
Tanzania	87	49	3	35	0.4	
Zambia	94	47	17	36	1.6	
Zimbabwe	131	48	30	41	2.6	
Seychelles	-	49	-	50	-	

2. We have seen that after independence the initial preoccupation was with the physical expansion of education. This was often at the expense of its quality and relevance. Studies have indicated clearly that the quality of primary education in particular leaves much to be desired. This is a consequence of the low level of educational attainment of primary school teachers. Many countries in their bid for rapid expansion of primary schools have continued to recruit trainees with lower secondary, even primary education qualifications, and to employ school leavers directly in the teaching corps. Another major problem affecting quality at the primary level is the lack, or at least, the paucity, of books, audio-visual materials and other resources that could enhance teaching and learning. Children often do not even have a copy of the official text books, let alone access to any additional resources. While ways have been found to expand the teaching force and initial training facilities, there remains a serious lack of continuous in-service upgrading courses and the linking of such work to new curricula and the production of new materials.

3. Education has developed in an hierarchical pattern: it prepares students for its own next stage. There has been much talk about the relevance of education to life after school; indeed a few sector reviews have actually taken place, for example in Botswana, Sierra Leone, Zambia, Tanzania and Nigeria, to examine education from this point of view and to suggest reforms. Yet in most countries, education remains tied to the form if not the spirit inherited from the colonial days. Education at all levels is too general, its emphasis is on arts and social sciences, rather than on science and technology; agriculture and rural development and the upgrading and diversification of traditional rural skills have little place in formal education. The emphasis is on the urban orientated modern sector of the economy and on only a limited part of that. The number of places in secondary and tertiary education devoted to science and technology is severely limited. In the secondary school, over 90% of the students are pursuing general secondary education and the remainder are divided between teacher training and vocational and technical education, (see Table 2).

4. Finally, countries have a very limited capacity to provide for the training of personnel required for rural development. There are very few agricultural extension, health education and general adult education or non formal education workers in the field. They suffer from low level training, and there is almost no provision for in-service up-grading. Yet the bulk of the population in all African countries is rural, poor and practices subsistence agriculture. Resources for education directed at the rural adult population, are very much smaller however, than those provided for school education. As long as a very high proportion of today's children cannot progress beyond initial primary education which gives little preparation for life in rural areas, the dichotomy between urban and rural development will continue to grow. In such circumstances, adult education is

TABLE 2

Education at the Secondary Level (1983)

COUNTRY	Total Enrolment	% F	General	% of total	Teacher Training	% of total	Vocational	% of total	Remarks
Botswana	25 010	54	22 252	89	948	4	1 810	7	
Gambia	14 430	31	13 390	93	124	1	916	6	
Ghana	753 660	37	725 831	96	12 893	2	14 941	2	
Kenya	513 033	40	493 710	96	13 792	3	9 531	2	
Lesotho	28 717	60	27 799	97	-	-	918	3	No figures for teacher training
Malawi	21 646	29	19 832	92	1 300	5	514	2	
Mauritius	77 838	47	77 188	99	-	-	650	1	No figures for teacher training
Nigeria	1 826 629	-	1 526 947	84	242 190	13	57 492	3	
Seychelles	3 569	53	2 605	73	210	6	754	21	
Sierra Leone	63 157	-	60 285	96	1 959	3	914	1	
Swaziland	28 292	-	27 801	98	307	1	184	1	
Tanzania	81 787	35	71 219	87	9 404	11	1 164	1	
Uganda	145 387	33	132 051	91	9 157	6	4 181	3	
Zambia	110 729	36	104 859	95	3 554	3	2 316	2	
Zimbabwe	316 435	41	316 104	99.9	-	-	331	0.1	No breakdown except for 331 women following vocational course

vital to development. Both improved training for rural extension staff and adult educators and increased resources for the services they provide, are equally necessary.

1.2 The Historical Development of Distance Education in Africa

In 1966, Lars-Olof Edstrom of Hermods-NKI, a large and well known Swedish correspondence institute, undertook a study on 'Correspondence Institutions in Ethiopia, Kenya, Tanzania, Malawi, Zambia and Uganda: Experience, Needs and Interest'(1), for the Dag Hammarskjold Foundation. This was in preparation for a seminar to be held in Uppsala on the same subject which, in the event, turned out to be two seminars which were held in 1967 and 1968. These attracted participants from both East and West Africa and provided an important stimulus for the development of correspondence programmes in many Anglophone African countries. The seminars also led directly to the only serious continent-wide attempt to create a structure for co-operative activity in distance education, the African Association for Correspondence Education, (see below). Edstrom found that at that time, there were three public correspondence Colleges in the region: the Zambian National Correspondence College set up in 1964, the Correspondence Unit of the Co-operative Educational Centre, Moshi, Tanzania, also operating since 1964, and the Malawi Correspondence College, established in 1965. Several small experiments, however, had been held in Ethiopia and in Uganda, and in all six countries plans for national correspondence programmes were at various stages of elaboration.

In Commonwealth countries of West Africa, and Southern Africa outside the Republic of South Africa, there were no public correspondence programmes at that time, though a few francophone countries had, in the early '60s, begun to develop specialised teacher or civil servant training programmes by correspondence, modelled closely on, or actually attached to, metropolitan French public institutions. INADES, (Institut Africain pour le Developpement Economique et Sociale), had also been set up in 1962 in Abidjan with its unique programme of simple correspondence courses on basic agriculture for peasant farmers throughout francophone West Africa.

By then, however, throughout at least Anglophone Africa, correspondence courses from mainly metropolitan commercial correspondence colleges had a long history. Many of the first generation of independent Africa's teachers, senior civil servants and political leaders had struggled to obtain the necessary qualifications for advancement through Wolsey Hall, Rapid Results, Metropolitan College or British Tutorial College. There was a large and lucrative market in providing secondary education to adult Africans for whom no secondary school places had been available.

The mid 1960s, then marked the take-off point for public interest in correspondence education by African ministries of education and manpower development. The huge pressures for rapid educational expansion, and strictly limited budgets, forced planners to look for cheaper alternatives to the formal, traditional education systems. In

1966 we have seen, there were only 3 public correspondence programmes in Commonwealth African countries. (2) By 1977, there were already 12 (33 in Africa as a whole). In fact, only three Commonwealth countries in Africa, Gambia, Sierra Leone and the Seychelles do not now have public correspondence education programmes. These figures show the very rapid growth in Africa of one kind of distance education.

It is more difficult to give the precise figures for other forms of distance education programmes. Schools broadcasting closely modelled on the BBC in UK, was introduced into most Commonwealth countries immediately before or soon after independence. By 1966, all Commonwealth countries in Africa had schools broadcasting units except Botswana, Lesotho and Swaziland and several had developed agricultural or health information services, producing radio programmes, posters and informational booklets and, in a very few cases, films for use in mobile cinema vans, to support general adult education services.(3) Most of these projects either used distance media to enrich face-to-face classes in schools, or formed part of a general open information service rather than an element in a structured and organised educational programme.

There have been two exceptions to this generalisation. In 1973, the Mauritius College of the Air launched a series of multi-media programmes to raise the quality and increase the relevance of teaching in private secondary schools in Mauritius. Their programmes consisted of television series, radio series and correspondence-type materials for use in class with teachers as supervisors and leaders. There, and in a more recent development in Kenya, broadcasting has been used as the main teaching medium. The Radio Language Arts Programme in Kenya ran from 1980 to 1985 and used radio to provide improved English Language teaching in some primary schools. In this model, radio is the main teacher, and the teacher provides tutorial support to students. As a result, radio provides a carefully structured core to the whole course. To be effective, it must be used in its entirety. The Kenya programme grew out of experience with a similar approach used with maths teaching in Nicaragua, and a further development is likely to be launched soon in Lesotho applying the methodology to primary science teaching.

During the late 1960s and early 1970s there was an explosion in public secondary level correspondence education. Most programmes aimed initially to provide opportunities for working adults to obtain secondary school qualifications they had not had earlier in their lives, but many have expanded their programmes to primary school leavers and secondary school dropouts. Several programmes were aimed mainly at practising primary school teachers, to serve as upgrading courses. A few initial teacher training programmes, linked to sudden and massive moves towards universal primary education, have been set up in the late 1970s and early 1980s. Most programmes have, at some stage, added radio support series to their printed courses. Table 3 shows the chronological development of these programmes, their target audiences, purposes and media used.

This growth of public correspondence institutions inevitably affected the development of the commercial schools. In Tanzania and Zambia for example, governments, as they established their own colleges in the late '60s and early '70s, set out to restrict or even ban the import of correspondence courses from abroad. This was done through foreign exchange restrictions. Some foreign schools attempted, with varying degrees of success, to circumvent these restrictions by setting up locally-registered branches. In other countries, especially those without secondary-level government institutions such as Nigeria and Zimbabwe, indigenous commercial colleges grew up in the early '70s and early '80s respectively, to take the place of, or at least to compete with the external schools. Commercial colleges, both external and indigenous, have concentrated on courses appealing to the largest potential markets, namely those leading to secondary examinations or, in a few cases, business qualifications. In both Nigeria and Zimbabwe during the last 5 or 6 years, the governments have set up accreditation councils through which the courses, and the practices of commercial colleges can be inspected and, at least to some extent, controlled.

At the tertiary level, the development of distance education has been much slower and more spasmodic. Two universities, Zambia and Lagos, were established with a commitment to expand their coverage by correspondence education written into their constitutions. The University of Zambia did so almost immediately, in 1967. The University of Lagos set up its Correspondence and Open Studies Unit in 1975. The only other university degree programmes in Commonwealth Africa have just been launched by the University of Nairobi, in Kenya, in 1986 and, in a limited number of professional education degree and diploma courses, by the University of Zimbabwe. During the last few years however, pressure has begun to mount in several countries for example in Ghana, Tanzania and Zimbabwe, for more such programmes in response to the growing demand for more university places, the need in many countries to contemplate the foundation of new universities and the international glamour attached to the British Open University and others which have been modelled on it. As yet, however, independent Africa, unlike most other continents, has no exclusively distance teaching university, though a plan was launched for a Nigerian Open University which was abandoned for reasons of cost.

At the other end of the educational spectrum, distance teaching techniques have been widely used for nonformal education in Africa. As already stated, many countries set up Health and Agricultural Extension Information Departments producing films, radio series, pamphlets and posters during the '60s. In several a more organised and systematic use of distance media has been made in agricultural or health education. Radio Farm or Rural Forums programmes were launched in Ghana, Zambia and in Nigeria in the late '60s and, at least formally, such programmes survived to the end of the '70s. In Tanzania, after several small scale experiments in the late '60s, a series of mass radio study group campaigns were organised during the '70s on health education, nutrition and afforestation. A similar pattern was adopted in Botswana in the mid '70s and from 1982 to date the same methods have been used in Zambia for national co-operative

TABLE 3

Growth of Public Secondary Correspondence Education

Date of Launch	Country	Institution	TARGET AUDIENCE				PURPOSE			MEDIA USED		
			Working Adults	Teachers	Teacher Trainees	Young Adults	Sec. School Qualification	Teacher Up-grading	Initial Teacher	Correspondence	Radio	Face-to-face
1964	Zambia	National Correspondence College	x			x	x			x	x	x
1965	Malawi	Correspondence College & Broadcasting Unit	x	x		x	x			x		x
1967	Nigeria	Ahmadu Bello University TISEP		x				x				x
1968	Kenya	Univ. of Nairobi Inst. Adult Studies CCU	x	x			x			x		x
1968	Uganda	Makerere Univ. Centre for Continuing Ed.	x	x			x			x		x
1968	Botswana	Francistown TTC		x				x				x
1970	Ghana	Univ. Ghana Inst Adult Ed CCU	x				x			x		
1971	Tanzania	Inst. Ad. Ed. Nat Corres. Inst	x		x		x		x			x
1972	Mauritius	College of Air	x				x				x	x
1972	Swaziland	Wm Pitcher TCC		x			x				x	x
1973	Botswana	Botswana Ex. Col	x			x	x			x		x
1974	Lesotho	Dis. Tch. Centre	x			x	x			x		x
1974	Swaziland	Int. Ed. Centre Emlaladini Dev. Centre	x			x	x			x		x
1977	Nigeria	Nat. Teach. Inst.		x				x				x
1981	Zimbabwe	ZINTEC (Zimb. In-serv. Teacher Ed. Centre		x	x				x			x

education campaigns.

An important theme of this paper is the experience and potential of international co-operation in distance education. An interesting historical perspective to the development of distance education in Africa is therefore the role of international co-operation. This section of the paper opened with a reference to the two Dag Hammarskjold seminars on correspondence education in Africa in 1967 and 1968 and to their impact on the growth of correspondence programmes in the various countries represented. Most co-operation, however, has been bilateral technical co-operation between non-African and African institutions.

There were three important influences on the development of correspondence education in Africa in the '60s: America (inter-university co-operation with Ahmadu Bello University in Nigeria and with Nairobi University College in Kenya), Australasia (New Zealand assistance to Malawi and Uganda, and Australian participation in the early plans for university correspondence programmes in Zambia and Nigeria), and UNESCO (support to teacher education programmes in Botswana and Swaziland and some years later to the National Teachers Institute in Kaduna, Nigeria). During the same period, the BBC, and later CEDO and the British Council Media Department, had an important influence on the development of educational broadcasting in many countries. UNESCO supported the establishment of Radio Rural Forums in Ghana and Zambia. In the 1970s, Sweden provided assistance to establish the Tanzanian National Correspondence Institute, Denmark helped Swaziland set up the Swaziland International Education Centre, (now the Emlalatini Development Centre) and the International Extension College of the UK helped the governments of Mauritius, Botswana and Lesotho and the University of Lagos, Nigeria, to set up distance education programmes. Apart from the Lagos programme, which has been exclusively a university degree programme, all these programmes of the '70s have been multi-purpose units.

1.3 Trends in the Development of Distance Education

Individual programmes of distance education in each country have been set up in the particular circumstances of that country to cater for special needs. If we take the continent as a whole, however, or even the countries in the Commonwealth, it is possible to identify certain predominant trends. Many of these relate to the kind and level of education to which distance teaching techniques have been addressed; others to the nature of the techniques themselves and their organisation. After twenty years, it is also important to look for patterns of success and failure. In the light of the emphasis put in the first section on the economic constraints on educational development, moreover, we need to seek general indicators about the costs of such programmes. In this section, we attempt to trace such patterns.

a) Secondary level courses

The most obvious trend in distance education over the last twenty years in Africa has been the increasing emphasis on secondary education programmes: many of the programmes in Commonwealth Africa covered in the survey carried out for this project, involved courses leading to recognised secondary school qualifications.

To begin with, most such programmes have had as their target audience adult workers seeking qualifications to improve their career prospects. In many countries, however, the possibility of using such courses to provide chances for secondary education to the myriads of young primary school leavers who fail to get places in formal secondary schools has been recognised. Most such young people are unemployed. It is assumed, moreover, that they need more structured support and guidance in their studies than their adult counterparts. A pattern of supervised study-groups has therefore developed in Zambia, Malawi and Zimbabwe, in which students meet together with a supervisor, who is not a teacher, and study correspondence courses, if possible, supported by a radio series. As the discrepancy between the numbers of primary school leavers and available secondary school places grows as universal primary education becomes effective, so does the attractiveness of this system to politicians and planners looking for cheaper alternatives to traditional secondary schools. The exam results of such supervised study groups have, on the whole, been disappointing, however, to Ministries, parents and students compared either to formal secondary schools or individual adult correspondence students. For example, in Zambia, pass rates in Junior Certificate (JC) exams can be as low as 17%, though they have risen to 33% in some years.(4) In Malawi, statistics for 1985 show JC pass rates of 18% (5)

b) Primary school teachers in-service upgrading

The greatest successes for distance teaching in Africa can probably be found in teacher education programmes. Here also there have been two waves. First, programmes concentrated on untrained teachers who had been in service for several years, and who could not be taken out of the schools for training in formal teachers colleges without severe disruption. Wherever adequate staff resources have been allocated to the careful preparation of courses and the provision of occasional but regular tutorial services, such teachers have been able to reach the required standard for the appropriate certification as teachers. Equally important has been the recognition by governments that such certification should gain teachers the appropriate salary increments and promotions. In most such programmes, the emphasis has been on academic upgrading. The opportunity for serious in-service training in pedagogy has not been fully exploited.

The second wave of development has been in response to rapid programmes of universal primary education. Tanzania and Zimbabwe are the main examples in the Commonwealth. In both, distance education has been used to make it possible for new recruits to the teaching profession to be put straight into the classroom, after quite short

residential induction courses, as apprentice teachers. They have then learned their trade by studying correspondence courses and by regular face-to-face tutorial guidance and supervision. In these cases, a greater emphasis has been put on pedagogical and methodological training. The approach has made it possible to increase dramatically the numbers of primary school places in a very short time; it has provided effective training, comparing favourably with traditional in-college initial training, to large numbers of teachers; and it has done so significantly more cheaply than more traditional methods of teacher training.(6)

c) Non formal education

If teacher education provides distance education with its most consistent successes, non formal mass adult education campaigns are probably its most dramatic achievements. Such campaigns in Tanzania, Botswana and Zambia have dealt with political education, health and hygiene, agricultural practises, afforestation and the organisation of co-operatives. They have been built around radio education series which have been supported by printed study-guides, with report forms for feedback to the organisers, and, in some cases, by posters, flipcharts and picture charts. These media have been studied by groups of adults meeting regularly to listen, read and discuss the programmes and materials. The creation and support of many such groups has required large-scale organisation and mobilisation, involving, usually, many different institutions and ministries. The results have been very large numbers of rural adults in remote and scattered areas learning new skills, changing traditional attitudes and in some cases, dramatic changes of practice.

In Tanzania in the early '70s, more than two million adults participated in health education campaigns, out of an approximate adult population of probably seven or eight million; the tribal grazing lands campaign in Botswana in 1976 recruited approximately 55,000, or nearly 15% of the possible total adult population and, in Zambia, the co-operative education national study group campaigns of 1983 to 1985 attracted somewhere between 30,000 and 35,000 each year out of a potential adult rural audience of between one and two million.

d) Extension worker training

There have been two small but significant developments for distance education in East Africa during the last few years; the African Medical Research and Education Foundation in Nairobi has launched in-service training by correspondence for rural medical workers in Kenya and Uganda on a pattern not dissimilar from that used for teacher in-service training. Similarly, the Correspondence Course Unit of the University of Nairobi has developed a series of courses of training in adult education skills for adult education officers working in the recent literacy campaign. Several years ago, a short-lived highly specialised course on map reading for agricultural extension agents in Botswana was run by the then Botswana Extension College. These three

projects represent attempts to use distance education techniques to provide in-service training to rural extension staff and show its potential to give such training to people with a basic and vital responsibility for development, a potential which has yet to be widely realised.

e) Distance education programmes for refugees

During the last six years, several new projects have been established to bring increased education services to refugees. In many parts of Africa the number of refugees is growing. They are often mobile and unsettled. Their educational needs are sometimes different from those of the people in whose countries they have been forced to settle, and they inevitably impose an added financial and personnel burden on the already overstretched educational budgets of the host countries. Distance education is being used in order to provide, as economically as possible, for the special needs of refugees. In Commonwealth countries, the three main programmes are in Zambia for Namibian refugees settled there and in Angola, in Tanzania for South African refugees and in Dukwe in Botswana, for both Namibians and South Africans. In all three, the major emphasis has been on secondary level courses or at least, in the Zambia and Tanzania programmes, on courses which prepare students to start on secondary courses; elsewhere, however, similar techniques are being used to train refugee primary school teachers, in Somalia, and for non-formal education, in Sudan.

f) Media trends

We have seen that the heaviest emphasis in formal exam-oriented distance education programmes has been on the use of correspondence courses, while in non formal programmes, radio has predominated. However, over the years, particularly during the 1970s, attempts were made in most programmes to develop multi-media approaches: correspondence courses were supported with radio series, and, more recently, with audio-cassettes; radio forum or campaign programmes were supported by printed study guides, and by picture hand outs.

On the whole, however, there has been a much more limited use of the electronic media in Africa than in other parts of the world. The main reason for this is that most distance-students in Africa do not have access to the media which are available elsewhere. Most of rural Africa has no electricity; television is therefore limited to the towns. Computers and microcomputers are still extremely rare. Access to telephones is also limited, and in many countries the telephone network, such as it is, is overstretched and often doesn't work at all. There are even problems of access to and use of radios: batteries are expensive and in short supply and servicing facilities often are non-existent; and audio-cassette recorders are still too expensive for most students to own.

Probably the most significant media development, however, and certainly the most peculiarly African development, has been the growth

of group study in preference to individual study. Most correspondence courses everywhere are studied mainly by individual students working at home in their own time. Similarly, most radio adult education series are listened to at home. This was also true of many African programmes when they started. Radio extension projects, however, rapidly adapted the forum approach from Canada and India, and the radio study group has provided the organisational focus for all the major distance education non formal campaigns. Malawi and Zambia invented the 'supervised study group' to provide structured learning conditions, guidance and supervision in formal course for the young adults who have become, increasingly, their main target audience. A similar development has taken place in Zimbabwe and, more recently, in the refugee education programmes for Namibians and South Africans. This development seems to have been stimulated mainly by the characteristics of the potential audience; in non-formal projects study groups have been used to help largely illiterate students to benefit more fully from the various distance media; in formal programmes they have been set up to cater for the youth of the students and the realisation that both their motivation and their study techniques would benefit from a structured support system.

g) Institutional patterns

Most correspondence programmes in Africa have been run by specialist institutions created for the purpose, or by specialist units so created but attached to existing education bodies. Three main types of institution have been set up. Government departments, usually within the Ministries of Education, have been established, for example, in Zambia and Malawi, in Botswana and more recently in Zimbabwe. Secondly, existing institutions, such as universities or co-operative colleges, have set up distance education or extension departments to run such programmes, drawing where possible on existing departments and academic personnel to write and teach courses; examples of this pattern can be found in the universities of Zambia, Lagos in Nigeria, Ghana and Nairobi in Kenya, and in the co-operative colleges of Tanzania and Zambia. A third pattern has been the creation of semi-autonomous or parastatal institutions, such as the Mauritius College of the Air, the Emlalatini Development Centre, (formerly the Swaziland International Education Centre), and the Lesotho Distance Teaching Centre, though the last has now become effectively a government department.

In most cases, whichever of those patterns has been followed, it has been found advantageous for the distance teaching institution to have its own printing facilities and, in some cases, to have radio or audio production facilities of its own. In all cases, however, where radio support has been used, the programmes have been transmitted by the public broadcasting institution. Most linked face-to-face tuition sessions have been provided by using existing institutions and facilities on an occasional basis. Tutorial and supervisory staff for both face-to-face and distance tutoring are usually employed on a part-time basis and are often permanent teaching staff of local educational institutions, including those used for study centres.

Two patterns of staff employment to write courses can be discerned: full-time subject specialists employed as course development officers, either permanently or on secondment; and part-time writers commissioned to write courses or parts of courses, in their spare time. The course writing workshop, in which teams of part-time writers are brought together for a short period of intensive writing has emerged as a successful method of producing courses quickly. Decisions about which method is used will often depend on the availability or shortage of qualified staff in the respective subjects.

Radio forum projects have usually been run from within the broadcasting corporation, with links, sometimes tenuous, with ministry extension departments. The radio campaigns, on the other hand, have usually been run by ad hoc committees, associating all ministries or institutions concerned in a co-ordinated campaign organisation for a limited period of time.

h) The costs and effectiveness of distance education

Very little detailed cost analysis has been done of distance education programmes in Africa. Any attempt to describe cost trends must therefore be highly tentative. The research on effectiveness is even less detailed.

Two programmes of distance education as support for inadequate teaching in schools, the Mauritius College of the Air secondary programme and the more recent Kenya Language Arts Primary Programme, have, however, both been analysed at quite early stages of their development. Both are programmes of additional services and do not eliminate any of the costs of existing programmes. Their costs must therefore be added to existing costs. It does seem, however, that for quite modest additional costs, comparable to those of good textbook materials and cheaper than additional private tutorial assistance, intensive distance teaching support programmes can significantly improve the quality and relevance of teaching in under-resourced schools and subsequently the number of students achieving satisfactory results in their examinations.(7)

In secondary level equivalency programmes, the evidence, though sparse, does seem to suggest that the costs per student, at least in programmes that have minimum enrolments of 10,000 students, are very much cheaper than those for in-school secondary students. This is true even where quite elaborate arrangements are made for supervised or supportive study groups, as in Zambia and Malawi, and is presumably even more so where no such arrangements are made. Perraton estimates for Zambia "that the cost per student at a supervised study centre is between about a quarter and a twentieth of the cost at a regular secondary school."(8) Murphy, in a recent World Bank report on the Malawi Correspondence College, reckons that the total cost (recurrent and capital) per student at an MCC supervised study centre is approximately 18% of the cost of a secondary school student. (9) At the same time, dropout and failure rates from such programmes are very much higher than for in-school programmes, at least partly because of

the comparative academic standards of students selected. Comparative costs of successful examination passes are therefore much closer to each other, though probably still just lower for distance students than for in-school students. Perraton concludes, for Zambia, that "if only 5 of each hundred students who start on their courses - or 14 at the higher estimate - pass their examination, then they will do so at a lower cost to Zambia than that of going to regular secondary school." He goes on to quote pass rates for Junior Certificate of between 17% and 33% and for GCE 'O' Level of between 5% and 50%.⁽¹⁰⁾ Murphy, for Malawi, estimates that the cost per successful JC candidate through the MCC Study Centres is just over 90% of that of a successful secondary school JC candidate. He points out, however, "that MCC students are likely to have to learn more than secondary school students to pass as they do not perform as well in the primary school leaving exam."⁽¹¹⁾ It is at least questionable whether distance teaching programmes for small numbers of students can be both effective and cheap: to be effective, they almost certainly require some face-to-face and tutorial services and multi-media support, for example by radio; the former are expensive regardless of numbers, while the latter only become cheap if they are realising economies of scale.

In teacher education programmes, there is ample evidence of academic success. Where this success leads to salary increments, (and therefore a rise in government salary bills), and the numbers of students enrolled rises to several thousand, the programmes can be economic. Chale's comparative evaluation of Tanzanian UPE teacher trainees in-college and at-a-distance concludes "the net unit cost for the successful ... TTC trainee was T.Sh. 82,002 ... the net unit cost for a similarly successful ... TTD trainee was T.Sh. 21,603 ... The latter was therefore four times cheaper."⁽¹²⁾ Where numbers remain small, (as in the Kenya programme in the years between 1968 and 1975), the costs do not seem to compare favourably with those of traditional training.⁽¹³⁾

We have no detailed analyses of university level costs from Africa. Subjective impressions of the two programmes that have been running for several years, however, would suggest that it is extremely difficult, though possible, to provide university degree programmes without large investment in higher quality materials production, regular face-to-face tutorial services, and a wide range of course options. Without such investment, programmes face limited success; with it, costs per student will be high unless overall enrolments are also very high - higher than seems feasible for most potential university programmes in many countries of Africa at present.

Most non formal education programmes are equally poorly documented as regards costs and effectiveness. The radio study group campaigns in Tanzania, Botswana and Zambia, have been evaluated, however. There is positive evidence of practical effectiveness and increases in knowledge; the costs, because of the very large numbers of participants, are very low. Almost certainly they achieve important educational effects at significantly lower costs than other more traditional forms of adult and extension education. In Zambia an

evaluation of the pilot co-operative education radio study group campaign in 1982 by Perraton, found that the cost per participant, in a campaign involving approximately 5,000 participants was Zambia Kwacha 12 (the equivalent of US \$8.13 in 1977). That figure Perraton claimed was similar to the reported per participant cost of the Botswana campaigns but considerably higher than those reported for the Tanzanian campaigns. He compared this to the cost for a 5 day course at a farmers training centre in Zambia which, at that time, was Z.K. 40 (or the equivalent of US \$26.83 at 1977 rates).(14) A recent evaluation, which will be available early in 1987, has been carried out of the National Study Group Campaign for 1985 run by the Zambian Co-operative College. In 1985, there were approximately 21,000 participants (the campaign was conducted in seven languages as compared to two for the pilot campaign), and the cost per participant is estimated by Warr to be Z.K. 16. If the 1982 figures are multiplied by 1.9 to allow for inflation, they would give the following comparison:

Cost per participant in campaign of 5,000	Z.K. 23.29
Cost per participant in campaign of 21,000	Z.K. 16.61
Cost per equivalent course in FTC	Z.K. 76.90.(15)

These comments about effectiveness and cost are based on a few detailed evaluation studies of distance education programmes in Africa. The conclusions and the definition of trends which has formed the basis of this section are inevitably therefore somewhat impressionistic and subjective.

1.4 Gaps and Failures in Distance Education as a Response to Needs

We have seen in the paragraphs above how distance education developed in Africa in general and the African countries of the Commonwealth in particular in the last two decades. We have also seen that their development was to some extent a consequence of an increased public awareness of the benefits of education, and the pressure that awareness exerted on the authorities. The public in Africa has become increasingly aware that job prospects, and therefore a better life, have become more and more related to educational qualifications, first at secondary level, and, more recently, at tertiary level.

Popular demand, however, is not for specific skill orientated or specialist education and training. The idea of hierarchical development of education in which primary schools prepare children for secondary education and secondary schools prepare pupils for university has been accepted. Popular demand seems to be for more of the same. This, at least, is how education authorities have interpreted the public demand for more education. They have set up public distance teaching institutions to provide more of the same. This section looks at some of the major gaps in provision and the problems faced by the programmes which have been offered.

(a) **The absence of science subjects in secondary and tertiary education**

Most institutions of distance education in Africa offer junior and/or senior secondary courses. They follow the secondary school syllabuses religiously, and prepare their students to sit for the same examinations as those which are taken by school children. Distance teaching has hit a difficult snag from the start. How do you teach practical subjects or provide for student laboratory experience through distance teaching? There appear to be two options: find resources to provide students, scattered as they probably are over a wide area, with a network of facilities to carry out practical work as required by science and technology courses, or restrict distance teaching offerings to courses which have no such requirements. In other parts of the world, the first option has been successfully followed. In Africa, however, though in most countries the distance teaching institutions are public institutions, they have failed to achieve equal recognition with the conventional institutions. They have certainly not been given the resources to develop their own network of practical study facilities; nor have they usually been able to get access for their students to laboratory and workshop facilities in existing institutions.

As a result, the institutions concentrate on the second or narrower option. They avoid those courses which require practical work and a heavy investment in the provision for it. They choose courses which are relatively cheap to develop and run. Such courses are usually languages, social studies such as history, geography and religious knowledge, mathematics and, occasionally, human biology, or human and social biology as the only science offering. A few of the institutions have introduced business courses such as book-keeping, principles of accounts, commerce and economics. The pure sciences are notable by their absence in all the countries. Attempts to develop kits for science courses in Kenya were abandoned because they were too expensive. Courses like agriculture (Lesotho), and woodwork (Mauritius), were also abandoned or not made widely available because of the problems of making arrangements for the practical work that should accompany them.

There is one important and successful exception. In the Zimbabwe Science programme (ZIMSCI), self-study materials, including practical experiment kits for use in rural classrooms, have been developed for lower secondary classes where there are no qualified science teachers. In such cases the class teachers act as guides and supervisors, not as teachers.

Similarly, in tertiary distance education, the natural sciences have been largely avoided, with the notable exception of the University of Lagos, where a major initial purpose was to train secondary science teachers and where the B.Sc (Ed) was one of the first degree programmes offered. Science practical work, to match that covered in the internal B.Sc (Ed) has been offered through the regular local tutorial meetings at study centres in regional secondary and tertiary institutions and through the compulsory annual vacation courses held

on campus for all correspondence students.

(b) The failure to provide adequate resources to promote quality programmes

The failure to provide adequate resources goes far beyond the problem of access to laboratory and technical facilities. Even when colleges and institutions are publicly supported, they have not been treated equally with conventional institutions. This ambivalent attitude has had at least two negative consequences. First, they have been financially starved and have also had acute staff shortages, both in number and in quality. The authorities have not seen the great benefit that could have been derived both for the students of the institutions themselves, and for those in the conventional schools, had they allowed the distance teaching institutions the free rein for their development. For had distance teaching institutions been well endowed, and manned with the best available teachers, they could have helped to develop distance teaching materials, both for their own distance students and also to be used in schools to help to diversify and improve the quality of conventional education. The second consequence of distance teaching institutions not being recognised as equal partners in the educational system has been that their students have usually not had access to whatever facilities and resources were available in the regular secondary schools. In all the Commonwealth countries in Africa there does not seem to be a mechanism whereby for a little additional financial and manpower outlay, the use of the facilities in the secondary schools can be made available to students of distance teaching institutions. Those on whom much is being invested by the public remain the favoured group. The adults, or out-of-school youth who use their spare time, and their money to acquire an education while working, are not provided with equal facilities. Science and technical facilities are sadly limited in secondary schools throughout Africa, especially in rural areas, but one way of making such scarce resources go further would be to give access to them to students of distance teaching institutions as well as to their regular students.

(c) Poor results in supervised study groups

As we have seen, academic distance education has had a second phase, namely the extension of its services to young school leavers. Supervised study groups exist in Malawi, Zambia, and Zimbabwe. The scheme is a consequence of the governments' inability to cope with the explosion of the primary school population and the consequent increase in demand for secondary places. The supervised study group idea is conceptually sound. It starts from the premise: young children, fresh out of primary schools, do not have the discipline and motivation to pursue education on their own, through distance teaching. They need supervision, and peer-group support if they are to persist in their studies and succeed. Their work thus rests to a large extent on the government appointed supervisors or mentors.

The supervised study centres suffer from two main problems. The first is one they share with the directly enrolled individual adult students

of the distance teaching institutions, who follow the same courses. This is their limited choice of subjects; as we have seen, there is no opportunity to study the pure sciences, or professional, technical and vocational subjects. The second problem emanates from the quality of the supervisors and mentors employed. Most of these are either primary school teachers with no qualifications to help the students with their secondary level studies, or young students fresh from secondary schools with absolutely no experience in teaching. They are not given any training either in group dynamics or face-to-face tutoring or counselling. Many of them try to teach the lesson in the study guides and end up confusing the students. The location of many of the supervised study centres in primary schools, church and community halls, or in specially built centres automatically separates them from the secondary schools and the use of their resources. Thus, the failure to provide extra resources to distance teaching institutions both for individual adult students and for supervised study-groups, however much they are saving per student compared to formal secondary schools, has severely restricted their ability to provide high quality services and achieve the results they are capable of achieving.

(d) Limited vocational, technical and professional courses

Very few distance teaching institutions in Africa offer technical, vocational or professional courses, though such courses have been shown to be successful elsewhere, for example, in Australia, New Zealand, the Soviet Union and more recently, in the UK. Teacher education is the exception. Its success has not been spread to other vocations and professions. There are a few courses in business studies in co-operative management and in rural health worker training, but these are exceptions. Yet the need for trained staff in business management and administration to run both government and private organisations is immense because of the acute shortage of experienced middle and senior management personnel. The most experienced staff have usually had little advanced training. Most organisations can ill afford to send such staff on full-time training courses, especially those who work in rural areas or small provincial towns, because of the disruption of their services such absence would cause. Distance teaching programmes which offer training to such staff on-the-job would have the dual advantages of allowing them to go on working and of relating their training to their immediate working conditions. The same pattern of need for advanced on-the-job training and of the potential advantages of using distance teaching methods to provide it applies to other professions such as medical workers, accountants and social or community workers as well as to middle level technicians.

A significant exception to the lack of technical education at a distance in Commonwealth Africa, is the plan by the National Correspondence Institution in Dar es Salaam, Tanzania, to launch a series of technical vocational courses in such subjects as plumbing, motor mechanics, tailoring, masonry and electrical installation. These courses will be offered for the first time in July '87 and will, initially at least, be aimed at people already in employment. They

will prepare students to take national trade tests if they wish.

(e) The problems of developing economic tertiary education programmes

University level distance education programmes in Africa have not yet grown to maturity. No completely distance teaching university in the Open University model has yet been set up, despite the abortive plans for a Nigerian National Open University, shelved largely because of cost. The University of Nairobi programme has just enrolled its first 600 students. The University of Lagos Correspondence and Open Studies Institute had approximately 4,000 active students in the 1985/86 academic year and is beginning to produce several hundred graduates per year; but it still offers a limited range of degree programmes and has not been able to sustain a multi-media teaching system. The University of Zambia, though, nearly 20 years old, has suffered throughout its history from lack of specialised full-time distance teaching staff, and from inadequate resources to produce fully-fledged correspondence courses. It has had to suspend operations at various points and at its maximum it has had 650 correspondence students.

The problems are many: most university courses include a wide range of optional or elective courses, all of them, at that level requiring sophisticated course materials; to justify the expense of such course development there needs to be a large number of potential students, and in most African countries individually, the potential numbers for each course are often low; support services such as libraries for tertiary studies also need to be elaborate but are often sadly lacking outside major urban centres in Africa. Yet the need for more graduates, especially in subjects relevant to manpower shortages such as accountancy, management, all forms of engineering and veterinary science, is acute, as shown by the plans in many countries for new universities. What are needed, moreover, are graduates with long practical experience. Yet the cost of new traditional universities is prohibitive, and the effects on development of removing experienced middle level personnel who do not have degrees for three years full-time degree courses could be disastrous. This is a need which distance teaching should be able, but has so far failed, to fill.

(f) Spasmodic programmes of non-formal education through distance teaching methods

The vast majority of the population of Africa is in the rural areas. Most people have had little or no education. Development that does not take them into consideration cannot be expected to succeed. Many countries see the importance of providing adult and non formal education for rural development. Many, as we have seen, have also recognised the importance of the media for non formal education. Very few, however, have undertaken large-scale systematic and regular distance teaching programmes of this kind. Though the examples of radio study group campaigns which have been quoted have recorded significant successes, even the countries which ran them have not made them regular features of their non formal education programmes; and the examples have not been followed widely in the continent. Nowhere, except in Kenya, have those distance teaching techniques used

successfully for teacher education been adopted on a large scale for adult educator and extension officer training. Nowhere at all has such a training programme been linked systematically to regular large-scale, non formal education, media based campaigns. Yet such an approach seems to offer possibly the only chance of a wide impact on development through adult education.

(g) Administrative and methodological problems

We have already stressed the failure of governments to recognise the need for extra resources, in cash, personnel and facilities, in order to increase the success rate of distance education and thereby to multiply its economic advantages. Three particular blockages stand out, all caused, or at least aggravated, by lack of resources.

First, though many programmes in Africa have attempted to be multi-media programmes, they have failed to exploit the particular strengths of those media: most radio series which form part of distance teaching packages have failed to exploit radio's motivational and entertainment value and have often consisted largely of oral summaries, delivered as lectures, of the information already presented in the printed materials; very little attempt has been made to exploit printed visual materials to illustrate and to demonstrate the lessons being taught in words especially where these lessons concern practical skills; alternatives to slow and unreliable postal services as a means to speed up correspondence dialogue between students and tutors have been left largely unexplored. This first blockage probably results from the other two.

The second is the serious lack of in-service orientation and training opportunities for the professional and administrative staff of distance teaching institutions.

The third we noted at the end of the previous section, namely the failure of distance teaching institutions, with a few exceptions, notably the Lesotho Distance Teaching Centre, to build regular evaluation mechanisms, including cost analysis studies, into their courses, teaching methods and administrative procedures.

(h) Supplies and maintenance problems

The above six categories of failures in distance teaching in Africa arise largely from professional or planning problems. As we have collected information from or visited distance teaching programmes, however, one outstanding and apparently unsurmountable problem has been brought to our attention time after time. Distance teaching requires equipment and supplies in order to produce and reproduce its teaching materials. Many institutions have initially benefitted from overseas aid in setting up printing shops, or audio studios and in supplying paper, printing supplies and audio supplies. Most of them no longer attract such aid, their supplies regularly run out and their equipment breaks down or wears out. Foreign exchange is needed to restock or to maintain their production operations and foreign

exchange is not available. All over Africa there are efficient distance teaching institutions which are grinding to a halt or being driven to inefficiency and frustration because they cannot get paper to reprint units which are out of stock or because they cannot get simple spare parts to repair their machinery. Thus the initial investment, often high, is no longer contributing to the economies of scale and continuity which are distance teaching's greatest assets. The cost of maintaining production is not so high as the initial investment, but because it is in foreign exchange, it appears to be too high.

2.0 SECTION 2

2.1 A Review of Co-operation in Africa 1966 to 1986

Distance teaching in Africa is relatively new. The people working in distance teaching are usually drawn from conventional education. They do not have much professional knowledge about distance teaching. Course development can be a slow and time consuming exercise, especially if there are no examples to go by or no people with previous experience to do it. Distance teaching under certain circumstances, for example, when it is not warranted by the size of the potential student body, can be expensive or impractical and unjustifiable. These and similar considerations have led new institutions to seek help and advice where they can find it, and to explore ways of co-operating with existing distance teaching institutions, both locally and overseas.

Co-operation in distance teaching in Africa takes place at different levels and in divergent forms. It ranges from international co-operation to continent-wide, regional, sub-regional, and even local or in-country co-operation between two or more institutions. The form of co-operation also varies, from simple information exchange to the sharing of materials, joint course production and staff training. At the end of section 1.2, on the history of distance education in Africa, the major co-operative links between non-African institutions and African countries in helping to set up new institutions were described. In the following paragraphs we shall briefly review what other co-operation has taken place in Africa, examining the form this co-operation has taken and the level at which it has happened.

a) Information exchange

The easiest form of co-operation to organise is information exchange. Information on the effectiveness of the various educational methods and delivery systems used in distance teaching and their cost, and on changes and innovations in distance teaching, is of interest to new institutions in Africa. Practitioners of distance teaching, like all other professions, have always seen the necessity to keep up with developments the world over. At the international level, information exchange is facilitated by such bodies as the International Council for Correspondence Education, (ICCE), now the International Council for Distance Education, (ICDE), the International Extension College, (IEC), and by various publications of both a specialist and a

generalist nature, disseminating information on distance education. The ICDE convenes international conferences every 4 years, publishes the proceedings of such conferences, as well as a regular bulletin which is distributed to members and member institutions. The International Extension College publishes a newsletter About Distance Education (ADE), which is distributed free as well as a series of broadsheets and case studies to facilitate the exchange of practical information on particular distance education issues. Specialist journals, such as the Distance Education, published by the Australian and South Pacific External Studies Association, and Open Learning, formerly the UK Open University's Teaching at a Distance are also useful vehicles for information exchange at international level. There are also, of course, occasional articles on distance teaching appearing in general education journals. All such channels of information are open to African distance teaching institutions and their staff, both for contributing and for receiving information. While it has usually been possible to find sponsorship for senior officials of African distance teaching institutions to attend conferences and seminars of such organisations, it has proved much more difficult to ensure that they and their colleagues have access to the more regular, printed exchanges. A major problem with publications, for African countries, is their inability to subscribe or purchase them because of budgetary and foreign exchange restrictions. An important co-operative step forward would be to ensure that such barriers are broken down.

In Africa, a somewhat halting attempt has been made to create a continent-wide association to promote inter-African information exchange on distance education. The African Association for Correspondence Education, (AACE), now AADE, was set up in 1974 arising out of the information contacts made at the Dag Hammarskjold Foundation Seminars, and the work of the Economic Commission for Africa. It grew out of the first conference on Correspondence Education in Africa in Abidjan in 1971 and has itself, been responsible for three subsequent continent-wide conferences, in Nairobi in 1974, which was its own founding conference, in Addis Ababa in 1979 and in Harare in 1983. The main purpose of all of these has been information exchange. While the AACE has largely failed to create permanent and continuing information exchange mechanisms, or to develop more elaborate co-operative services, these conferences have been a major opportunity for professional exchange.

A more regular and, at least on a smaller scale, more successful exchange of information and professional expertise, has been the Distance Learning Association of Southern Africa, (DLA). Distance teaching institutions and staff of Botswana, Lesotho and Swaziland have now met regularly twice a year, since its foundation (as the Botswana, Lesotho, Swaziland Correspondence Committee) in 1972. At these meetings, all institutions present reports and discuss each others experience. The DLA also produces a regular newsletter.

In addition to its general information service, the IEC has tried to organise an information exchange on refugee education. In a recent conference, jointly organised by IEC and World University Services-UK

Committee (WUS-UK), a start was made on the exchange of information on the educational needs of refugees and the available provisions. There has, so far, been a particular concentration by IEC on African refugee communities. Another example of information exchange on a particular kind of education, is the service of the International Co-operative Alliance on Co-operative Education. This has been carried out internationally through publications, such as its CEMAS (Co-operative Education Materials Advisory Service) publications, and in East and Central Africa through a series of sub-regional seminars and workshops organised between 1977 and 1980 by the ICA Regional Office in Arusha for East, Central and Southern Africa.

b) Materials sharing and joint course production

Another form of co-operation is the sharing of teaching materials. Many institutions in Africa, Europe and North America, have been ready to make their materials available, especially to a public institution, free of charge or for a nominal fee, either in the form of a single copy of a course for local reproduction or through bulk purchase.

When the IEC was helping to launch the Mauritius College of the Air, the Botswana Extension College (now Department of Non-formal Education) and the Lesotho Distance Teaching Centre course materials were made available from its sister college in the UK, the National Extension College (NEC), for use as a stop-gap measure until the new colleges were able to develop and produce their own "O" Levels materials. Courses from Zambia from the Zambia National Correspondence College, were also made available on the same basis. When the first course in mathematics was being developed for Namibians, by the Namibian Extension Unit (NEU), the Botswana, Lesotho and Swaziland basic mathematics course was used as a basis, and was adapted for use by the NEU. Similarly, the IEC and the Commonwealth Secretariat have arranged for NEU materials to be made available as models for the South African Extension Unit in Tanzania. The IEC has also facilitated the sharing of materials between the Sudan Extension Unit, which it developed to cater for refugees in the Sudan, and the institutions in Lesotho and Botswana, the NEU in Zambia, and the NEC in the UK.

Materials sharing has three distinct uses. The first is as a source of information on content and style of presentation for training potential course writers. The IEC has often used materials in this way in its in-country training programmes. The second is to make foreign courses available to students as a stop-gap measure until such time as a country is ready to produce its own courses. The third use is to provide such courses possibly with minor adaptations, to students on a regular basis where numbers do not warrant the development of special local courses. For example, the NEU and SEU are using this approach with their "O" level students.

However, materials sharing is not without problems. Good course materials are developed for use by a particular student audience. They are not easy for other students to use without some modification or adaptation. The difficulty might be the language, for example,

where courses are prepared for native speakers rather than second-language students, or the content and examples which are usually country specific.

A potentially more rewarding and productive form of co-operation is therefore the joint production of course materials for students in more than one country. This should be especially useful for countries that follow a common syllabus, and for courses for which individual countries do not have a large enough potential student body to enable them to produce courses on their own. The only example of such co-operation in Commonwealth countries, however, was a joint project by Lesotho, Botswana and Swaziland to produce both the junior secondary (JC) level courses and "O" Level courses. The three countries themselves arranged a system of joint copyright for all the courses they produced at the JC level. The Commonwealth Secretariat financed an "O" Level joint courses development programme which helped to produce four courses and is an example of a highly successful project at the sub-region level. Problems arose even in so limited a project and the Swaziland institution decided to withdraw, thereby cutting by a third the number of courses eventually produced.

c) Joint programme development

A more elaborate form of co-operation in course development is when various countries come together to plan, produce and administer a distance teaching programme jointly. There are very few examples of such projects in Africa, as elsewhere. There have however, been at least three such programmes, all of them small scale, for highly specialised groups and concerned with professional personnel development. In West Africa, in the early 1970s, modern mathematics of an agreed form was being introduced in the four Anglophone countries, Liberia, Ghana, Nigeria, and Sierra Leone, in co-operation with the West African Examinations Council. There was an immediate need to train teachers to teach modern maths, but the training college tutors were themselves still uninitiated. A correspondence programme was therefore developed at Cape Coast University in Ghana and taught to all maths tutors in teacher training colleges in the four countries, linked to travelling super-tutors and national seminars. A second project which is still running is the African Curriculum Programme run from Kenyatta University for the East and Central African Region. In this, senior curriculum development officers from all countries undergo an advanced post-graduate course, partly by correspondence and partly by residential seminars. A third example is still being prepared but is soon due to be launched. This is a joint youth officer training scheme to be run by the Commonwealth Youth Programme, Africa Centre, in Lusaka, for Botswana, Zambia and Kenya. This will also be a correspondence course linked to national seminars. There is no evidence available to show how economic or effective such programmes are.

(d) Co-operation in staff development

As we said in Section 1, a major problem for distance teaching in Africa has been the lack of professional training. No individual

country has expertise in this kind of training when they first start distance teaching programmes. Even today, no countries in Africa have more than a few such institutions. The number of staff requiring training in any one country, at any one time, is small, but this does not diminish their need for such training. Three categories of staff need training: part-time and full-time teaching staff, including writers, student counsellors, correspondence tutors and face-to-face tutors; and administrative staff such as printers, artists, layout specialists and records officers; and senior management and production staff such as heads of institutions, editors and audio-producers. The need, and its recognition by all concerned, has led to four kinds of training. The first has been short training workshops for one institution or one country, run internally. In the early days of a new institution, such training has often been carried out with external assistance: the Swedish International Development Agency (SIDA) ran a training workshop for staff of the Tanzanian National Correspondence Institution in 1970; the IEC has run several such workshops in countries where it has assisted in the creation of new institutions, for example in Mauritius, Botswana, Lesotho, Nigeria and Sudan. Secondly, several sub-regional training workshops of a similar nature have been and continue to be held, for example in Kenya, with German assistance, in Zambia, in Nigeria and through the Distance Learning Association of Southern Africa. Thirdly, various study tours and training attachments of staff from one institution to another organisation in another country have been arranged, though usually on a spasmodic and bilateral basis. Most of the programmes listed so far have been once-only occasions organised to meet a specific need. Fourthly, a few international and more intensive and systematic training programmes have been held, which African distance educators have been able to attend. The Dag Hammarskjold Foundation Seminars were the first. Australia has also held occasional courses of this kind. The University of Wisconsin in America runs regular post-graduate programmes in distance education. The IEC, in the UK, through the University of London Institute of Education, has now held ten annual short courses on distance education and is starting its ninth annual MA Level options course on distance teaching, 138 participants from Africa have attended the former, and 22 the latter. There have been discussions, between universities in both East and West Africa about launching regular regional or sub-regional professional training courses, but, as yet, no courses.

2.2 Conclusions and some Proposals for New Co-operative Initiatives in Distance Teaching in Commonwealth Africa

(a) Conclusions

This paper so far has highlighted three common failures of education systems in Africa to meet crucial development needs. First are the gaps in the development of scientific, technical and vocational training structures. This arises partly from the lack of educational status and attractiveness and also of resultant job opportunities for students and parents of such training, where it exists. Secondly, there have been bottlenecks, for economic reasons in the expansion of

post-secondary education opportunities, especially in subjects which are likely to lead to appropriate employment, to keep up with the expansion of demand arising from increased numbers emerging from primary and secondary schools. And thirdly, and in the opinion of the writers, most disturbing, have been the failures to develop mass adult and non-formal education programmes. Such programmes would provide education for economic and social change on a wide scale not only to the generation of adults for whom primary and secondary education was hardly available at all, but also for today's millions of young adults whose formal education was cut off before it had made them functionally literate and numerate and failed to equip them with employable skills.

Our survey of trends in distance teaching has shown that that also has failed to address itself seriously in most countries to these major failures of the education system as a whole. More of the same, through distance teaching substitutes and parallels, has proved to be easier and more readily acceptable to educationalists, parents, and potential students. Naturally, therefore, attempts at co-operation have also concentrated on the whole on the most common and successful programmes. We have seen many examples of successful small-scale international, or at least bilateral co-operation in setting up new projects of distance education. Most of these have been between an African and a non-African institution or government. And most have led to secondary school or teacher training programmes.

We therefore turn to possibilities for new initiatives in cooperation. International co-operation is, in itself, expensive. Its major justification, at a time of continent-wide budget stringency, is if it can facilitate programmes which will help to break, economically, Africa's central educational blockages. A second main purpose must be the improvement in the efficiency and relevance of existing distance teaching programmes and a third must be to help institutions to introduce innovative pattern-breaking courses. We take these three as the first principles of our proposals. A fourth is that new initiatives should build on existing structures wherever possible, rather than creating new and grandiose international institutions. A final principle is that such new educational initiatives should be linked wherever possible to regional or sub-regional policy initiatives, enunciated by international African groupings, which are realisable, and which lend themselves to implementation through education - or at least, whose implementation can be forwarded by education.

(b) Joint and Shared Programme and Course Development

We have noted that there have been very few examples to date of successful joint development of programmes. We have also suggested that shared course development offers the most practical form of co-operation. We believe that the limited experience there has been suggests that this is more feasible at sub-regional level than on a larger scale. There are several examples of sub-regional syllabus development and a few of successful sub-regional joint examination and certification.

We suggest that the following criteria should be used in choosing courses for common development by several countries:

- the existence of common syllabuses, or agreement of the need for common syllabuses
- the existence in one of the countries concerned of strength and experience in that particular subject area which could be developed
- subjects or courses where the numbers of potential students in any one country would be too small to encourage national initiatives but where the cumulative numbers in all countries concerned would produce economies of scale
- subjects where all national policies and understanding and approaches in the region are compatible

We list four kinds of programmes where such co-operative programme development is possible and would be highly beneficial:

i) Science, technology and vocational courses

We have stressed how few distance teaching courses in these subjects there are. Yet it is possible to teach such courses at-a-distance. Development of course materials is expensive, yet syllabuses are common. Joint course development including materials, practical kits and practical experiment teaching strategies would cut down the cost through economies of scale. It is likely that junior and senior secondary science courses would be fertile ground for such co-operative development, as would technician training courses, at City and Guilds or Higher National Certificate level or the equivalent. Such programmes could draw on the ZIMSCI experience, for example, for secondary science courses, and the developmental experience of the National Correspondence Institution in Dar es Salaam for technical vocational courses.

ii) Post secondary, middle and high level person power training programmes

One cause noted earlier for the comparative failure to develop tertiary distance teaching programmes in Africa has been the small numbers required at tertiary level by one country in any one professional subject. Each such subject, at that level, however, usually requires a wide range of courses and supplementary materials which are therefore expensive to produce to an acceptable quality. At sub-regional level, on the other hand, the numbers needed in each subject are likely to be large enough to realise economies of scale in the production of such materials. The curriculum requirements, moreover, are likely to be almost the same, and a modular approach to course development would make it possible to cover minor national differences. There are also, at this level, certain subjects where common training at sub-regional level, linked to common standards and

common professional and technical conventions and practises would in itself, positively facilitate sub-regional economic and social co-operation. Such subjects include accountancy, banking, customs and excise administration, civil engineering, transport and communications technology, and language training for interpreters and translators in Africa's international languages. It is reported that a major stumbling block faced by such programmes as the Preferential Trade Area, SADCC and ECOWAS is the diversity of legal and technical practices.

All such cases of middle and high level professional, technical and administrative training programmes, could and would fit in with recognised priority person-power development needs.

We would therefore suggest that the following range of professional and vocational courses could provide an immediate example of joint course development at post-secondary level:

- middle and senior management administration courses (building, for example, on the Arusha-based East and Southern Africa Management Institute in Tanzania* and/or on the COSIT Administration degree courses of the University of Lagos).
- diplomat training (using the Dar es Salaam international diplomat training programme as the base)
- transport and communications engineering and technician training (eg, civil engineering, railways engineering, telecommunications training etc).
- accountancy, international law, banking, customs and excise officer training (initial and inservice upgrading)
- senior educational administration and planning, curriculum development training etc (based on the Kenyatta University African Curriculum Training Programme).
- language training courses for various levels of officials, administrators, interpreters, translators, engineers, etc, in eg, English, French, Portuguese, Swahili, etc.

* The East and Southern African Management Institute (ESAMI), based in Arusha in Tanzania is a good example of a co-operative training programme on a sub-regional basis. Because of problems of cost, mainly arising from diverging national exchange rates and general regional devaluation against international currencies, this programme has begun to face recruitment problems for its residential courses. Its senior management has begun to explore distance teaching alternatives.

iii) Middle-level adult education, extension and development officer training programmes

The failure to exploit distance teaching techniques for non formal and adult education - or at least the failure to replicate in many countries and on a large enough scale to have a major impact on development the dramatic successes of a few countries in this field - has already been noted. It is at the level of basic, non formal adult education that new initiatives could have their widest impact on the largest number of people and in ways which could bring about the most significant changes in people's quality of life. Such initiatives could be effectively linked to major policy drives by regional and sub-regional political organisations. Mass adult education programmes however could not be launched internationally, in our opinion, because of the vital need to relate materials and delivery networks to local experience and conditions. The role for international initiatives should be large scale training of extension and development workers in adult education and communications techniques and in the effective use of distance teaching methods for their work. It is significant that several of the examples of co-operation in distance teaching which we have reviewed are in this field of training, though most are on a small and limited scale, such as AMREF's health worker training in East Africa, CYPAC's proposed youth officer training course and sub-regional interchange, through the International Co-operative Alliance on co-operative education.

Our proposals here would be as follows:

- agricultural extension officer training courses in adult education and communication
- rural health worker training
- adult education officer training
- co-operative education officer training
- the extension of CYPAC Youth Officer training

Such training would concentrate on adult education and communication techniques. It would need to be modular to allow for it to be fitted together with individual country or area specialities or needs. It would mainly leave technical (health practices, agricultural techniques, co-operative practices and so on), to internal training institutions though it could help them to produce such local training by distance teaching. It would also be possible, however, to link such a programme from time to time to major regional or sub-regional campaigns such as the OAU's recent and urgent commitment to increased food production to prevent future famines in Africa or to attempts to launch major international campaigns of disease prevention.

iv) Sub-regional information campaigns

There are some mass adult education campaigns which would lend themselves to a sub-regional co-operative approach, however. These would exclusively be on subjects where changes of popular attitudes to regional and sub-regional co-operative initiatives are vital for those initiatives to succeed. Such subjects as attitudes to inter-African or sub-regional trade, preference for non-African imported goods, rather than products of neighbouring countries, the importance of protecting African industrial products and breaking existing trade patterns and the potential of inter-African co-operation in overcoming major agricultural shortages or health hazards could be treated in this way to considerable advantage.

(c) Information exchange, co-operative training and professional development in distance education

The two most regular forms of inter-African co-operation in distance education to date have been a series of continent-wide information exchange conferences, run mainly by the AACE and sub-regional staff training seminars. Both activities are seen as fruitful areas for further development, but it has been difficult to raise funds for and set up an infrastructure to sustain such activities on a regular basis. A third essential service for the improvement of distance education is research and evaluation. We have experienced and noted how little systematic and regular research and evaluation there has been in Africa, as elsewhere. Without it, information exchange must remain superficial and staff training subjective.

We therefore propose a series of initiatives to facilitate and regularise programmes of professional development in distance education in Africa. Most of these would, once again, consist of sub-regional programmes, though in this respect, it would be important to ensure co-ordination and liaison between the sub-regional programmes.

i) Programmes of distance education and staff training

- regular, short, skill-training courses and workshops, eg, for editors, student advisors, audio production staff, etc (sub-regional)
- annual/biennial medium-length senior staff in-service training programmes, (sub-regional) including trainer training seminars
- access to post graduate courses in distance education (regional or intercontinental)

ii) Sub-regional centres for research and evaluation in distance education

Two such centres would be required, one for East, Central and Southern Africa, and one for West Africa. They should probably be attached to existing distance education programmes with experience of research and evaluation. Their main role would be to commission and supervise

research and evaluation studies on distance education in the countries in their sub-region to ensure a systematic coverage of such programmes. They could, however, also be approached by individual institutions in their sub-region to carry out specific research and evaluation studies for them. There would obviously be considerable value if some such studies were comparative, examining similar programmes in the sub-region and comparing results between the sub-regions.

iii) Regular information exchange and occasional continent-wide professional conferences and seminars

In our opinion, these are the only services, apart from liaison between the other programmes already proposed, which it would be feasible to run on a continent-wide basis. The information exchange would need to be able to collect information and course samples from distance education programmes throughout the Commonwealth countries in Africa. More importantly, and with greater difficulty, it would have to ensure that the information and samples so collected were made available to other programmes in the network in a way which could be shown to be useful to the development of their own programmes. Such an information centre would also be the base from which information from outside Africa could be made available to African institutions, including access regularly to foreign professional journals and publications. It would also form a natural base from which occasional future continent-wide conferences on distance education could be run.

(d) Organisational possibilities and cautions

We do not propose here detailed organisational structures through which the programmes and initiatives we have suggested should be implemented. We conclude, however, with a few guidelines for the development of such structures which would, we think, make it more likely that the proposals would be acceptable to the various and sometimes conflicting interests of the parties and countries concerned.

First, we repeat what we have said before: these initiatives can and should mainly be built on existing institutions; for example, training in distance teaching could be attached, for East, Central and Southern Africa to the College of Adult and Distance Education of the University of Nairobi, which has for many years, offered some such services, informally, to other countries in that area; tertiary-level training in management and administration could be developed for West Africa, based on the existing programmes in that subject run by the Correspondence and Open Studies Institute of the University of Lagos and for East, Central and Southern Africa on ESAMI in Arusha; research and evaluation services for East, Central and Southern Africa could be built onto the long-established Research Unit of the Lesotho Distance Teaching Centre; and so on. Such a model would need to ensure that all countries were eventually involved both as providers and as users of such courses and services and that no countries dominated the system. Similarly in most countries, the student support and tutorial services

required for co-operative course projects could be attached, at a price, to existing local distance teaching networks, 'rather than creating whole new international infra-structures'.

Secondly, we believe that quite modest sub-regional secretariats, with built-in liaison channels to national institutions and especially to those selected to run the programmes arising from such new Commonwealth sub-regional initiatives, would be all that would be needed to monitor, publicize internationally and handle sub-regional financial negotiations arising from such programmes. Such secretariats, moreover, would be able to handle all the projects proposed, whether they be professional development projects in distance teaching, or person-power training programmes.

Specifically the roles of such sub-regional secretariats would be:

- to identify regional personnel development needs
- to identify existing national institutional strengths on which to build regional programmes
- to co-ordinate fund-raising and financing for such sub-regional programmes
- to commission national institutions to develop sub-regional programmes and to coordinate sub-regional curriculum committees
- to provide support to such programmes
- to organise and/or commission comprehensive research and evaluation projects
- to provide liaison between sub-region and sub-region, between national institutions and between national and sub-regional programmes

Thirdly, it follows that we see a very limited role, and therefore an even more limited institutional structure, for continent-wide Commonwealth programmes. Intercontinental and pan-Commonwealth activities would be extremely few, and mainly limited to information exchange, the promotion and support of a continent-wide association and occasional examples of technical co-operation.

A fourth guideline is perhaps the most difficult. It would be highly desirable if any of the initiatives proposed, while being Commonwealth co-operative initiatives could, in the medium and longterm, be open also to non-Commonwealth African countries in the respective sub-regions. Presumably such expansion would have to be separately financed from the original Commonwealth initiatives.

Our final suggestion is that for the somewhat diverse and disparate co-operative initiatives to stand a chance of acceptance either to the Commonwealth as a whole - and therefore to be able to attract the necessary funds - or to the individual Commonwealth countries in

Africa, it would be essential to have some core programmes which had large and dramatic objectives, such as the joint training of extension workers to run anti-famine food production campaigns. Such projects would give the whole programme an international credibility without which it would be extremely difficult to launch and even more difficult to maintain its individual parts.

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PAPER 2

DISTANCE EDUCATION IN COMMONWEALTH ASIA

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CHAPTER TWO

INTRODUCTION

Commonwealth countries in Asia are a mixed group, small in number but varying in size from Singapore to India. Rather than attempting to find common features where none exist this paper starts by looking briefly at education in Asia generally and then considers each of the Commonwealth countries in turn, leaving aside India which is covered in its own paper.

I. PATTERNS OF DEVELOPMENT (1)

1. Background

Asia contains the two countries with the highest populations in the world, and as a continent is associated with a huge population. Education cannot keep up with population growth. Primary schools must be increased by 50 per cent over the remainder of this century, to maintain the existing enrolment level; about a third of the continent is under 15. The vast majority (except in Japan, Hong Kong and Singapore) lives in rural areas: but in cities like Bombay, Calcutta and Kuala Lumpur the population is doubling every 10 years. The size, rate of growth, population and mobility of the population is important for educational policy in the region.

There are extreme differences both in economic performance and educational achievement amongst the Asian countries, as shown by figures from the larger Commonwealth countries:

	Population(2) (mid '84) millions	GNP per capita USA \$	Number enrolled in education as % of age group (1983) primary secondary higher (age 20-24)		
Bangladesh	98.1	130	62	19	4
Hong Kong	5.4	6330	106	68	12
Malaysia	15.3	1980	99	49	4
Singapore	2.5	7260	113	69	12
Sri Lanka	15.9	360	101	56	4

While there has been tremendous expansion in enrolments in education over the last 20 years, the trend has been towards higher rates of growth at secondary and higher levels, and a continued lag in the education of girls.

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- (1) This section relies heavily on reports by Dr Muhammad Selim and Dr Raja Roy Singh of the Unesco Regional Office, Bangkok.
 - (2) Figures from 1986 World Development Report, World Bank OUP 1986 curriculum. In-service teacher education features prominently in many national education plans.

The supply of trained primary teachers overall has improved, but there are still substantial numbers of untrained teachers, and a major need for in-service training which accompanies attempts to diversify and develop the school

Meanwhile, the absolute numbers of children and young people out-of-school has increased, to include about 60% of the population between 6 and 23 years old. Non-formal education programmes are offered to these young people by various concerned ministries, but coordination between ministries remains weak and methods of delivery remain conventional.

The demand for higher education is growing, and cannot be met, even though higher education receives a large share of education budgets.

Moreover, inequalities of access according to socio-economic background, age, sex or race are noticeable. One solution to this problem has been seen as distance education.

2. The Development of Distance Education in Asia

In Asia as a whole, development of distance education has been patchy and mostly recent. Some countries have developed correspondence or distance alternatives to school for adults. The Korean Air Correspondence High Schools, started in 1974, now enrol about 75,000 students, mostly young working adults and Thailand's recently established radio-correspondence programme has 100,000 students studying at secondary level. Indonesia with the PAMONG project and the Philippines with IMPACT have used self-instructional materials for primary school level as a way of extending access to education where too few teachers are available. In Indonesia PAMONG is now firmly established as an alternative to the formal system. Indonesia has also used distance methods for teacher training, while Nepal is currently training teachers by radio. Thailand and Indonesia both make extensive use of media in their non-formal education.

In recent years, there have been dramatic developments at university level. In the sixties and early seventies, a few schemes started, mostly as extension or correspondence departments of existing universities: these include a number of Indian universities and the University Sains Malaysia Off-Campus programme. In 1974, the Allama Iqbal Open University, Pakistan (then the Peoples' Open University) admitted its first students. Within a few years, the idea of Open University had caught hold in Asia. The picture today is as follows:

Burma:	Open University being planned
China:	Central Radio and Television University, restarted late 1970s, currently about 1,000,000 students
India:	Andhra Pradesh Open University established 1982, current enrolments 22,929

	Indira Gandhi National Open University, established 1985, first enrolments in progress
Indonesia:	Universitas Terbuka, first enrolments 1984, current enrolment 115,000
Republic of Korea:	Korean Air and Correspondence University; established as Junior College 1972, full university since 1982; current enrolment 150,000
Pakistan:	Allama Iqbal Open University: first students admitted 1974, current enrolment 64,652
Sri Lanka:	Sri Lanka Open University, established as Sri Lanka Institute Distance Education in 1976, current enrolment 18,000
Thailand:	Sukhothai Thammathirat Open University, first enrolments 1980, current enrolment 167,000

This remarkable growth has had two important results. First, it has led to a strong community of interest within Asia, together with a creative, innovative approach to higher education at a distance. Second, it has led to an overshadowing of distance education for other purposes. While some countries have secondary-level distance education institutes, these seem to attract little interest. Some of the Open Universities are concerned with teacher training. But on the whole the glamour of the Open University idea has led to an under-exploitation of distance education to meet the very substantial needs at secondary level and for professional training. The potential of distance education for non-formal education as a tool for rural development has also been largely neglected, with the result that the term distance education is by many in Asia thought to apply only to open universities.

In each of the Asian Commonwealth countries, distance education is developing its own distinctive pattern. There is a danger that the current wave of enthusiasm for open universities will inhibit appropriate developments in some of these countries.

3. Bangladesh

A number of important target groups for distance education have been identified in Bangladesh. These include:

Primary school teachers: total 180,000; retraining needed;

Secondary school teachers: total, 90,000; 70% untrained;

Secondary school certificate failures (about 150,000 annually) and higher school certificate failures (about 90,000 annually);

External Degree candidates (annually about 50,000 more qualify for university than places available);

External vocational students (quantity unknown).(1)

An initial interest in introducing distance education to Bangladesh in 1980 to 1981 came to nothing. In 1983, two existing organisations, the Schools Broadcasting Programme and the Audio-Visual Educational Centre, were merged into a National Institute of Educational Media and Technology. Ideas began to crystallise focusing on in-service training for secondary teachers, and in 1985 the National Institute was renamed the Bangladesh Institute of Distance Education with a view to introducing a BEd degree.

(2) It was noticed that all the basic components needed for starting the B.Ed. had already been developed on a modest scale in BIDE. So, it was decided that with some additional facilities and modest funds the experimental programme could be started by BIDE under the academic protection of Rajshahi University. Several national level workshops were held to find out the ways and means for starting. All the 10 Teachers' Training Colleges, National Institute of Educational Administration Extension and Research (NIEAER), Institute of Education and Research (I.E.R.) of Dhaka University and Rajshahi University joined with BIDE to start the experimental programme.

It was decided that BIDE would operate the whole programme and 10 Teachers' Training Colleges would be used as regional centres. Their facilities would be utilised during vacation and off time for tutorial service, summer school, etc. Applications were invited for admission from in-service secondary school teachers. The response was enormous. More than 12,000 applications were received against 3,000 seats.

On first July 1985, the first experimental formal course under Distance Education (BEd) was started with 3,211 students.

The next intake of July 1986 took 3,288 out of about 20,000 applicants. The present role strength is 6,499.

The conventional BEd course of ten months' duration is extended in the distance education system over a period of two years. The whole period is divided into 4 semesters, each of 6 months' duration.

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- (1) Figures from Ralph Smith, Consultant's report to the Asian Development Bank on Bangladesh Open School Project, Feb/Mar 1985.
 - (2) The short account that follows is taken from a paper on Distance Education in Bangladesh prepared by Professor K M Sirajul Islam for the Regional Seminar on Distance Education, November 26 - 3 December 1986. The seminar was organised by the Asian Development Bank in collaboration with Sukhothai Thammathirat Open University and in co-operation with Unesco Regional Office, Bangkok. The extract is reproduced by kind permission of ADB.

The following media and support services are available for conducting the BEd programme:

printed course modules

audio cassettes: 60 minutes per subject per semester

radio: 30 minutes a week

tutorial classes: twice a month, with part-time tutors

counselling service (by correspondence and radio)

summer schools: annually, at the 10 teachers colleges

practice teaching: demonstrations and supervision in schools

BIDE, a multimedia organisation under the Ministry of Education is solely responsible for the overall management of the experimental programme.

The University of Rajshahi is responsible for the academic affiliation of the programme.

BIDE has entrusted the existing 10 Teachers' Training Colleges (T.T.C.) and the National Institute of Educational Administration Extension and Research (NIEAER) to work as regional centres. The principals of the 10 T.T.C.'s and one senior staff of NIEAER have been working as part-time coordinator of the regional centres. About 126 specialists of these institutions have been working as the part-time tutors. The coordinators, with the assistance of these tutors, in addition to their own duties, are to manage the field level operation of this experimental programme.

4. Brunei

There are no known distance education activities in Brunei.

5. Hong_Kong(1)

Recently there has been a great deal of discussion among policy makers in Hong Kong over the introduction of a substantial open education programme.

Origins of the need for open education in Hong Kong

Hong Kong has had very rapid population growth since the end of World War Two which was brought about largely by two major migrations of people from mainland China. The first of these was in 1949 and coincided with the establishment of the People's Republic of China.

(1) This section on Hong Kong is by John Coffey of the Council for Educational Technology

The second occurred in the 1960's during the Chinese Cultural Revolution. The existing schooling, training, and higher education provision simply could not cope with the demands placed on it by these substantial and unpredicted population growths.

A second important factor to consider has been the roots of the education and training systems. Pre 1949 the education system was exclusively based on United Kingdom models of schools and universities. Institutions, such as Hong Kong University, have a long history of activity based on European approaches to education. With the extraordinary influx of people from the Chinese Mainland other traditions came into play and the Chinese University was established to respond. Different systems of access to higher education were adopted for the Chinese University and for the Hong Kong University, the latter being based on a two year 'A' level course and the former on a one year 'higher' course.

The picture is further complicated by the addition of an independent Baptist College and two polytechnics. The polytechnics in particular were intended to meet the needs for technical training and were not intended to provide higher education. They are not at present able to award degrees. Nonetheless the pressures for higher education have been such that the Baptist College, the two polytechnics, and the two universities have together come to constitute the higher education provision in Hong Kong. They are funded through the universities and polytechnic grants council (UPGC) and provide places for 2.8% of the relevant 'A' level age group. A third university is being built and both the City Polytechnic and Baptist College will expand considerably over the next five years. Even when these plans are completed in the mid 1990's they will cater for less than 8% of the 'A' level age group. These figures make it clear that there is substantial under provision of higher education opportunity in Hong Kong at present and that even when the expanded provision comes on stream there will still be a substantial proportion of the mature adult population which is qualified for higher education but unable to get it.

This statement is further reinforced by the fact that large numbers of people spend substantial sums each year sending members of their families to institutions overseas to receive higher education. It is estimated that at least \$3,000,000,000 Hong Kong dollars are spent per year in this way. Families are prepared to go into considerable debt in order to ensure that qualified members receive the benefits and opportunities that flow from higher education. In this environment it is not surprising that there is a thriving correspondence course market and, given the absence of any effective controls, that the quality of the products on sale varies enormously.

It is not only in levels of higher education that there is a need. Universal secondary education is comparatively recent and there are many people in the adult population who undertake studies at this level. There is also a great need for technology training in a variety of topics. For example the Hong Kong Polytechnic recently offered a course in computer studies leading to a diploma. There are forty places available on the course and ten thousand qualified

applicants. Other evidence for the need for adult education comes from the thriving External Studies Departments in the two universities and Baptist College. The Chinese University in particular enrolls some fifty thousand students each year, seventeen thousand of whom are involved in one or other aspect of distance learning courses. At any one time more than a thousand students will be registered on distance learning activities.

Experience of Open Education in Hong Kong

A number of centres in Hong Kong have some experience of operating or taking part in distance education schemes.

- (a) At the secondary level Caritas has established a set of programmes (analogous to the United Kingdom flexi-study schemes) operating in twenty four centres throughout Hong Kong. Courses include vocational courses as well as general studies courses.
- (b) Experience in management education is more substantial. The management association of Hong Kong runs a number of distance education courses in Chinese dealing with a wide range of business topics. The vocational council also has some modest experience in running distance learning schemes.
- (c) In higher education the Baptist College has for three years offered tutorial facilities for a distance education degree programme based at Ohio State University in the United States. Hong Kong Polytechnic and City Polytechnic are similarly associated with distance learning programmes developed elsewhere, namely from Brunel University and Warwick University in the United Kingdom.
- (d) Experience with broadcasting has been confined to the external studies pro learning it, nonetheless, cannot be counted as substantial experience sufficient to underpin a major development such as proposed by the Education Commission.

The most substantial experience in operating and running distance education schemes lies outside the major recognised institutions in Hong Kong. Among these is the Open College, a constituent part of the University of East Asia. The University of East Asia is based at Macau but the main activities of the Open College operate in Hong Kong. The Open College offers twelve degree programmes built on courses developed in institutions overseas, mainly from the Open University in the United Kingdom and Massey University in New Zealand. There is also substantial private activity linked to correspondence colleges based in the United Kingdom and elsewhere. These have a number of tutorial links inside Hong Kong itself though these are very difficult to quantify and, like the Open College, are not recognised by the Hong Kong government. Many other institutions in Canada, Australia and the United States are also attempting to set up distance education outposts in the territory.

Major problems facing the development of an open education system in Hong Kong

Hong Kong plans to establish an open education consortium. Despite the great interest, by comparison with the size of the problem there is a real shortage of distance learning expertise in the territory. This is particularly evident in the area of tutorial support. Currently the tutorial staff from major institutions also have part time work in other institutions so that the total numbers of tutorial staff available is smaller than it appears in the statistics. The Open College makes use of expertise drawn from the business community as well as the academic community to support its tutorial efforts and this tactic will probably have to be adopted by other institutions if they are to be able to meet the need in a short term. This pool of expertise in the business community is probably quite large but it cannot be tapped without an effective training system in skills relevant to distance learning. Even the Open College admits to a deficiency in training its tutorial staff though it has an impressive system of monitoring tutorial work which compensates for this to an extent. The monitoring system could easily be adapted for use elsewhere.

The consortium, when operational, will make extensive use of materials produced overseas. It will also engage in collaborative activities with other organisations for the adaptation of existing materials and the production of new materials to meet particular needs.

The Republic of China is also very active in the development of distance education and has both printed and broadcast materials available and under development. Hong Kong is also looking to these sources as an important resource for its Cantonese population.

Main issues for Commonwealth Cooperation

Hong Kong is currently not a full member of the Commonwealth because of its status as a dependent territory. It is not, therefore, represented as of right in the Commonwealth discussions, its interests being represented by the UK Government. With the transference of the territory to the Republic of China in 1997, it is difficult to imagine Hong Kong ever having full Commonwealth status. Nonetheless organisations in the territory do welcome contacts with Commonwealth member states and do wish to share ideas and expertise.

Hong Kong institutions would like to be involved in joint course development activities in the high technology area. The demand for high technology courses in Hong Kong is likely to be large, and the pool of qualified people is large.

Hong Kong institutions also see themselves as acting as translators from the English to Chinese and as collaborators in developing openings for distance learning activities in mainland China. The Peoples' Republic of China has indicated to institutions in Hong Kong that it would welcome their continued involvement in international activities in education and training, and so there is also the

opportunity for links outward from mainland China, through Hong Kong, to the rest of the English speaking world.

Institutions in Hong Kong are interested in any information that can be provided about materials and courses in development.

The credibility of Commonwealth cooperation in open learning, however, will lie in the areas of development of effective credit transfer and support for common currency degrees. Without these activities very little else will be regarded as having more than incidental value. Senior educationists recognise the difficulty of achieving these ends but saw opportunities for building on existing bilateral arrangements between institutions. A collection of information about existing bilateral arrangements and their nature would create essential information for extending similar bilateral arrangements to other organisations elsewhere. Each arrangement would have to be negotiated on its merits but the existence of similar parallel arrangements as models would make it easier to negotiate similar deals in new contexts. It is for this reason that an organisation such as the Open College of the University of East Asia is of such interest in Hong Kong. The Open College has already negotiated a range of degree programmes built round materials bought from other universities. This has included the negotiation for mutual acceptance of awards. This model and experience is of considerable interest to institutions in Hong Kong and has much potential elsewhere.

Common Currency degrees based on Commonwealth agreed syllabuses and standards also are seen as practical. Hong Kong institutions would certainly wish to take part in discussions leading to the establishment of such frameworks for academic activity. A start could be made in subjects such as science, mathematics, technology, and business where cultural differences are not of great importance.

6. Malaysia(1)

The Universiti Sains Malaysia (USM) is unique among the six Malaysian universities in that it is the only one authorised to deliver a Distance Education (DE) program to home-based adult students in the country. There are no distance education programs in the school sector in Malaysia neither is there any vocational or career-oriented DE programs. The USM is also unique among the Distance Teaching Institutes (DTI) of the ASEAN region in that it is one of the very few conventional dual mode universities having such a program.

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- (1) This account is an abbreviated version of 'Distance Education in Malaysia', a paper prepared by Dr G Dhanarajan for the Regional Seminar of Distance Education, 26 November to 3 December 1986, organised by the Asian Development Bank in collaboration with Sukhothai Thammathirat Open University Thailand and in cooperation with Unesco regional office, Bangkok. The paper is reproduced by kind permission of ADB and the author.

Its monopoly in the Malaysian context is essentially a result of a governmental directive precluding the other five universities from operating similar programs.

Such (monopolies) decisions are arrived at after considerable discussions with the universities in order to maximize the returns from the limited financial, human and other infrastructural investments of a small country.

The program was launched in 1971 on an experimental basis and it continued to be so till 1982 when its status was changed from one of experiment to that of a regular program thereby giving it the status of an established faculty and permanence. In its 16 years of existence the program has changed structurally and academically. Today it is poised to play an even greater role in Malaysia's attempts to bring higher education to its diverse population.

Educational setting

The present conduct of education in the country is carried out according to the dictates of the Education Act of 1961 with subsequent modifications since then to suit the changing needs of Malaysian society. As envisaged by the Act, by 1985 free education was made available to children up to secondary school level. The nation's educational system can be stratified into four categories. They are:

Pre-school education: Children between four and six years old receive pre-school education. There are about 5,667 pre-school establishments and they cater to nearly 279,000 children. Almost 80 per cent of these schools are run by government agencies, not necessarily by the Ministry of Education. The rest are run by private business concerns.

There is a general feeling that this sector of the country's educational system needs careful enquiry as there seems to be a wide variation between the 'better' and the 'poorer' run schools. Curriculum, supervision, control and training in this sector is seen as an immediate necessity by policymakers and the population at large if the country is to benefit from this activity.

Primary education: Primary education lasts six years. Children enter school between six and seven and graduate into the lower secondary school at 11 or 12. In 1985, 2.2 million children were enrolled in the nation's primary schools most of which are state-run. It was also estimated in that year that almost 98.3 per cent of the children who had entered Standard 1 in 1980 completed Standard 6 indicating that at least at the primary school level attrition is almost negligible. Five years ago the primary school curriculum was revised to place emphasis on the three Rs and simple manipulative skills to make this sector of education more meaningful to the children at large.

Secondary education: The transition rate from primary to secondary schools in 1985 was about 88.2 per cent. Almost a million children were registered in the lower secondary schools (age 12 to 14) and another 310,000 were registered in the upper secondary schools (age 15

to 17) making a total of 1.3 million secondary school going children in the country. In 1985 about 190,000 students sat for their school final examination (Malayan Certificate of Education). For almost all but the top 30 per cent this will be the end of their academic training. The upper 30 per cent enter pre-university (matriculation) programs which lead up to the Malaysian High School Certificate and if successful go to the local universities or teacher training schools, go off-shore to pursue tertiary education, or follow career, technical and vocational studies locally.

Technical and vocation studies: There are nine government-run technical schools in the country with a total enrolment of 6,700 students in 1985. These are children who have gone through the primary schools and have opted for a technical career. Besides these there are also 40 vocational secondary schools with a total enrolment of 13,700. These schools conduct trade courses of various kinds.

Teacher education: In 1985, 9,100 teachers were under training in the country's 24 teacher training colleges. Teacher trainees in these colleges are secondary school (MCE or HSC) graduates who undergo a two or three-year program for certification before being deployed in primary and lower secondary schools. Teachers in upper secondary schools are expected to have a degree and would normally undergo a four-year program in the universities. The Fifth Malaysia Plan clearly indicates that there is a shortage of trained teachers at all three school levels.

Tertiary education: Malaysia has a family of six universities, one of which has its antecedents before independence and the other five after. In fact the sixth university is just a year old while the other four are about 15 years or so. Four of the universities are multi campus in nature and between the six of them they had an enrolment in excess of 70,000 students in 1985. This figure includes students pursuing degree (54.1 per cent), diploma (36.1 per cent) and certificate (9.8 per cent) courses. Besides these about 5,280 students were also following matriculation programs in the universities. In 1986 about 8,600 students were freshly enrolled into the universities out of about 50,000 applicants. This shortfall in opportunities is not new and has largely been the most important factor in the movement of Malaysian students overseas. In 1985 it was estimated rather conservatively that about 60,000 Malaysians were studying overseas in degree and diploma courses. Another 35,000 are expected to go abroad in 1986.

The off-campus academic programme of Universiti Sains Malaysia

In 1969 when the Universiti Sains Malaysia (USM) was set up the founders included the following as one of the main recommendations of the new University:

"... it was recommended that the new university should have the power to grant external degrees. We agreed and recommended this accordingly. We understand that the University of Malaya has this power, but has not so far exercised (it) on the ground that

it lacks the facilities. Our draft constitution leaves it to the authorities of the University of Penang (the original name of the Universiti Sains Malaysia) when to exercise its power to grant external degrees." (1)

The University from its inception took the above recommendation seriously, the foundation Vice-Chancellor and his Academic Planning Board declared in 1971 the establishment of their Unit for Off-Campus studies with the following statement:

"... The off-campus education programme is a constitutional commitment to enable both the university to benefit itself as well as the society that sustains its educational enterprise. It is to cater for the many Malaysians who, for one reason or another, do not get as much of it (education) as they can turn to advantage or as they discover, sometimes too late, that they need. It is meant primarily for adult students in full time employment or working in the home, the programme functions to balance the inequalities of opportunity that exists between working men and full time university students."(2)

The new unit which was part of the Centre for Educational Studies was given a mandate with several objectives. These were:

- (i) To help those adults who had earlier missed the opportunity for obtaining a higher education and thus qualify for a degree;
- (ii) To narrow the gap of educational objectives among the various ethnic groups in the country;
- (iii) To take education to economically deprived and geographically isolated areas;
- (iv) To increase the nation's (supply of) high level manpower;
- (v) To improve the performance of those already in employment by updating their knowledge and skills.

At launching, the University offered courses in the Humanities and Social Sciences. However by 1973, due to pressure especially from the Ministry of Education courses in the Natural Sciences and Mathematics were also included in the program. During much of this period the academic year was organized on the basis of three terms with annual examinations at the end of the academic year. To further maintain the high quality of the USM degree off-campus students were expected to spend a compulsory residential year. Since then, while still maintaining all of the safeguards to protect the program's respectability, and the University's standards structural changes have

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- (1) Report of the Cabinet Committee on the University of Penang, 1969.
 - (2) Report of Academic Planning Board, University of Penang, 1971.

been introduced to include characteristics that make distance education organizationally efficient and academically sound. Following evaluation by a University and Ministry of Education team the unit was in 1981 upgraded into a center with both academic and administrative responsibilities. This allowed the center to employ academic staff (both educational and content specialist), design curriculum, manage course creation, development, delivery and support. It does not allow the center to award degrees. What the center in practice does is to help off-campus students acquire up to 90 credits in the distance education mode thereby enabling them access for one year full time study at USM on campus for 30 more credit units and graduation. Students are now expected to spend a minimum of five years off-campus and one year on campus (5 + 1).

Unlike the other distance learning systems of Southeast Asia, USM's program is run by a conventional university and therefore not surprisingly it imposes all of the academic entry qualifications such universities impose on prospective students.

Since 1983 approximately 500-600 students are offered admission into the off-campus program annually.

Being tied to a conventional university and its graduation requirements the nature of the program's academic structure had to conform to the many regulations governing this. The three degrees offered are patterned after traditional Commonwealth structures. Students are expected to carry an approximate workload of 4,000+ hours spread over four years in the full-time mode. The 4,000 hours are fragmented into 120 credit units offered over eight semesters. Off-campus students are not full-time students and therefore the University has presumed that it may not be possible for them to acquire the necessary graduating credit units in eight semesters over four years like their on-campus counterparts. Based on this premise the academic program is structured as follows:

- (a) The students will be expected to acquire 75 per cent or 90 credit units in the off-campus mode and the remaining 25 per cent in a final full-time residential year where they will follow higher level course.
- (b) In the off-campus mode students are expected to take a minimum of five (stages) academic years (up to a maximum of ten) to acquire the 90 credit units. This works out as about 18 credit units a year.
- (c) Each academic year for the off-campus student takes 35 weeks of which three are spent in residence at the University (The Intensive Course). An on-campus student on the other hand carries the same load in a semester lasting 15 weeks.
- (d) Students have a choice of majoring in Science and Mathematics (BSc with Honors), or Humanities (BA with Honors) or Social Science (BSocSc). They are also allowed to cross minor in any of the three areas provided they satisfy the necessary

prerequisites. In 1985 students were spread among the three programs as follows:

Arts	414
Social Sciences	336
Sciences	522

The courses

The University willed that the courses offered in the off-campus mode should not be dissimilar to those offered in the on-campus mode, at least as far as the content was concerned. However USM demanded that course delivery should be appropriate to the needs of the home-based learner. In return for this demand the University in its transcripts and other official documents deliberately does not distinguish those graduating through the off or on-campus mode.

In 1971 when the program started, only eight courses were offered in the off-campus mode. In the current year (1986) 128 courses are available to off-campus students throughout Malaysia.

Like any other organization involved in distance education, the creative act of teaching is divided among different persons. At USM teaching is performed by:

- (a) a lecturer or team of lecturers from the Centre of Off-Campus Studies or from any of the other Faculties of the University who create the printed material as well as conceptualize and sometimes produce other media supplements. In these tasks the teacher can avail himself or herself of instructional design and other (editorial) expertise located in the center. Technical and design expertise is also available from the Centre for Educational Technology of the University.
- (b) a lecturer or lecturers who "manage" the course when it is delivered to the students. These individuals are responsible for preparing the assignment, examination and conduct of the intensive course from year-to-year. Course managers need not be, though they often are, the same individuals who create the courses in the first place.
- (c) the regional tutor who meets with the students, in the many study centers, throughout the academic year.

All of these teachers are expected to work together with the knowledge that the whole operation encompasses a single teaching act even though their individual efforts are separately created or performed. It is therefore essential that a carefully devised plan be prepared for course development with complete awareness of the other person's responsibilities.

The delivery system

Courses in the Off-Campus program are delivered in a variety of forms. Being a mixed mode institution the University has a large pool of talented academic staff which it draws on heavily for tuition. Briefly the following modes of delivery are used - a short note on how each mode is used is also included.

- (a) **Print:** This is the principle teaching instrument. All of the knowledge for a course is presented in an interactive text. We follow two styles, often mixing both. In one form a comprehensive study guide is written around a recognized textbook or book of readings. In the second form, especially in the science and mathematics courses, comprehensive interactive texts are created. These texts include all of the content a course needs. This is so because of a lack of good textbooks in Bahasa Malaysia (Malay language) which is the medium of instruction in all Malaysian universities. This production of science books in the national language is one of the valuable spinoffs of the Off-Campus program.
- (b) **Radio:** Used weekly for counselling and general information purposes. Our research shows that this medium is unreliable as a teaching tool in the Off-Campus Program mainly because of the frequency of postponed and cancelled programs by the broadcasting organization. Students soon learn not to rely on published timetables. Therefore, very realistically, missing radio programs should not expose students to examination difficulties, consequently enrichment becomes the major purpose of the medium.
- (c) **Cassettes:** This medium is used for direct teaching, comprehension and review. Cassettes are supplied along with other materials to all students.
- (d) **Interpersonal:** Dual mode institutions have a distinctive advantage in the availability of human academic talent. USM uses this resource to great advantage. The annual residential school of three weeks provides unlimited access for students to course writers, course managers and other academics for consultation. One cannot help but believe that the greatest amount of teaching/learning takes place at this time. During the rest of the year the university makes available regionally-based part-time tutors, especially for the science and mathematics courses, for consultation. These tutors are regularly trained for their jobs by the University. Often they are graduate high school teachers.

Support systems

From the beginning of its off-campus program, the University made an unequivocal stand on providing a high quality off-campus education which would be just as good as its on-campus. This meant providing a support system that would ameliorate as many of the disadvantages of

self-learning as possible. In order to achieve this goal, we made use of the excellent high school and teacher-training college systems spread throughout Malaysia. These physical facilities were needed to provide space for laboratory exercises, tutorial classes, library resources and examinations. We also had to emplace subject tutors, counsellors and study center administrators to make these facilities functional.

Today there are 13 study centers spread throughout the country. No student has to travel more than 90km to reach a study center. These centers are used for the following purposes:

- (a) A venue for orientation meetings: fresh and continuing students meet at the start of each academic year to plan out their study programs with the help of the University's administrators.
- (b) A venue for tutorials: between July and the following March of every academic year tutorial sessions are held every weekend for one subject or another. Students registered for courses for which tutorials are being held on any weekend are expected to attend these sessions.
- (c) A venue for laboratory classes: USM is quite unique among DTI's in that from its very early days it delivered high level science courses. To provide the necessary facilities for practical work we organized laboratory classes in the study centers. Part-time tutors/demonstrators helped with the conduct of these exercises and the University supplied the necessary equipment and the consumable items. At one time practical classes were conducted for about 32 science courses involving a total 600 hours per academic year per center.
- (d) A venue for housing reference material: Set textbooks, reference books, photocopies of journal articles, reports, past examination papers and non-print media material are all made available for students and part-time staff.
- (e) A venue for meeting visiting lecturers: Academic staff from the campus occasionally visit to handle especially difficult topics.
- (f) A venue for assessments: Students take their continuous tests and final exams in the familiar surroundings of their regular study centers.
- (g) A venue for social gathering and self-help study groups: The first is a regular occurrence but the second has not really become a popular activity.

Usage of study centers

Through experience we have found that we have to be proactive in order to popularize the use of the study centers. Students using these facilities regularly are often found to be the ones who do well in their courses and remain in the system till completion. Active

promotion of study centers take the form of regularly organized tutorials, peer group meetings, library and counselling sessions. Students see and use study centers for academically-oriented activities, rather than for social and other functions. Based on data of student course load for the 1981-1982 session, someone who registers for a maximum of 18 to 20 science credit units may spend up to a maximum of 240 hours an academic year in the study center or about 7.5 hours a week for 32 weeks of the academic year.

Though statistics are available for the 1986-1987 session the impression is that study center use has seen a steady increase over the years and it is anticipated that with more courses being added to our profile, it will continue to do so over the next few years.

The University does not employ staff on a full-time basis to run study centers. Because of the availability of good educational institutions around the country neither do we need our own premises. Through contractual arrangements with selected institutions in the regions, we use the facilities during non-working hours. We employ the most senior staff of the host institution to act as our manager (designated as Resident Tutor) for the center.

The Resident Tutor is paid a very small monthly honorarium to carry out the above activities. The person takes his directions from the Director of the Off-Campus Program. He in turn gives direction to a host of subject tutors under his supervision on the conduct of their responsibilities. Each study center has on an average about 60 part-time tutors. They are all paid by the hour and their responsibilities include assisting the students under their care with specific study problems, help in laboratory classes, counsel on study strategies, help in carrying out assignments and marking assignments and providing feedback to students.

Besides support in the regions, the University also runs two campus-based support services. These are a reference library service whereby our students from throughout the country can borrow books from the University's main library which houses nearly 500,000 volumes of books and journals, and a counselling service through a 'HOT LINE' - a telephone recording service which is open 24 hours a day throughout the year.

Assessments and examinations

All regulations relating to course assessments and examinations are decided by the senate of the University. The responsibility for conducting these rests with the examinations section of the University's registry. In order to minimize inconvenience to students, examination centers are set up throughout the country with the assistance of the examination syndicate of the Ministry of Education. Exam papers are dispatched to the various centers where the syndicate officers undertake proctoring. Exams are conducted under strict supervision. Written examinations are compulsory for all courses and they are held annually. To provide a second chance for those who fail in a sitting, a supplementary exam is also held. In

most cases the coursework contributes between 30-40 per cent towards examination grades.

Organization and administration

The Center functions as a faculty of the University. Under the governance of the University's senate it formulates its academic policies (eg courses, teaching methods, delivery systems, exam systems, etc). To execute the policy, the Center operates under the leadership of a Director, who has three Deputy Directors to look after the various academic functions (curriculum design, course creation, tutorial support systems, etc).

There is also under the Director a senior assistant registrar and two assistant registrars who assist in the administration of the system (course registrations, student records, material dispatch and assignments receipts, production schedules, warehousing etc). There is a student counsellor who works with the academic and administrative staff in ameliorating student problems.

Financial resources

The Off-Campus program derives its operational and development budget from the Government of Malaysia. A fee is also collected from the students, but under the existing financial regulations of the Government this revenue is returned to the Federal Treasury. In 1985 the Center received a total operational allocation of MYR.748,048. However this figure does not include the wages of the personnel working full time in the Center, nor does it include the cost of the wages of the other sectors (eg the Central Printing Unit, the Centre of Educational Technology, the various faculties which provide academic manpower, the registry, bursary, library and chancellory which contribute a certain portion of their own resources towards the running of off-campus). When all of these costs are added, the operation and development budget of the Center is approximately MYR.3,663,209 for the support of 1,272 students in 1985.

Cost effectiveness

The Center's main expenditure falls under four major categories. These are:

- (a) Developmental, which mostly relate to purchase of text processing, data storage and transmitting facilities as well as creating working space for its staff. Since buildings within the campus are already there, the Center actually enables the University to make a more efficient use of these; and hence, they do not get included as part of the cost of off-campus operation. Printing facilities and non-print media production facilities are central facilities of the University - the Off-Campus Center is but one of the many users of these resources. Taking away two of the above items from the Off-Campus budget means in 1985 the development cost of the Center at MYR.303,328 constituted 7.7 per cent of its operational cost.

- (b) The operational cost in 1985 was MYR.748,048 or 19 per cent of the Center's total budget. A substantial portion (about 45 per cent) of the money went towards the support of the tutorial system. One of the Center's major functions is text processing and this component consumes perhaps 20 per cent of the operational budget.
- (c) Staff wages at the Center since 1981 have seen a dramatic increase. This is a reflection of the Center's move towards having its own academics as befits a faculty. The academics who form part of the Center's establishment will eventually be responsible for the creation and management of all the off-campus courses. At the moment the Center has filled less than 50 per cent of its staff strength. In 1985 the total wage cost of Center-based staff (both academic and non-academic) amounted to MYR.1,231,371 or about 36.3 per cent of our budget.
- (d) The Center relies on many parts of the University community to provide a variety of services. These range from providing content specialists, printers, audio and video producers, to administrators of one kind or another from the chancellory, registry, library, bursary, etc. Using a formula devised in 1981 by the reviewers of the Ministry of Education, these 'kind' services amounted to MYR.1,653,462 dollar value or roughly 42 per cent of the cost of running the off-campus. In any dual mode institution it is inevitable that a certain portion of the cost of maintaining the whole university has to be assigned to the off-campus sector. The quantum of this portion will depend on the level of sophistication the Off-Campus Program takes. In the case of the USM this level is high and consequently the cost of their contribution is also accorded a high value.

Table 1 is a rough analysis of the cost of operating the Off-Campus Program between 1981 and 1985. It can be seen that the hour cost of maintaining students has seen a steady increase over the last years which is partly a reflection of the Government of Malaysia's decision to upgrade the quality of program in 1981.

TABLE 1

The Off-Campus Programme Budget (1981-85) (in MYR)

Year	(1)	(2)	(3)	(4)	(5)	(6)
1981	40,960	624,400	372,121	1,133,457	1,607,978	742
1982	150,400	909,306	362,100	1,246,457	2,668,213	937
1983	70,000	662,225	607,017	1,366,914	2,706,156	1,102
1984	144,000	666,592	755,384	1,503,148	3,099,124	1,109
1985	303,328	748,048	1,231,371	1,653,462	3,936,209	1,272

Notes:

- (1) Development cost: Incurred by Off-Campus Center - does not include cost of buildings and facilities previously installed.
- (2) Operational cost: Includes the recurrent expenditures for materials and supplies (including chemicals, glassware, etc) for running the program. The figure also includes the wages of regional staff, rentals and utilities.
- (3) Staff salaries: The wages excluding fringe benefits of academic as well as non-academic staff of the Center.
- (4) Cash value: In kind contribution of the other sectors of the University towards running of the off-campus program. Contributions from the Chancellory, Registry, Bursary, Library, Central Printing Unit, Faculties of Mathematics, Chemistry, Biology, Physics, Social Sciences, Humanities, Languages and Educational Technology.
- (5) Grand Total
- (6) Enrolment

Various authorities have clearly expressed the difficulties of working out accurate cost-effective arguments for running distance education programs. While this is partly true for single mode Open Learning Institutions, it is certainly very true for the dual mode ones, where clear-cut formulae do not exist. Most of the time the dual mode institutions start off by presuming that their external studies program does not need or consume new resources but will rely on efficient and complete use of existing ones, both human and material. Experience in Malaysia and elsewhere clearly indicates that this assumption is far from right. External studies programs consume a lot of resources and the cost of graduating an external studies student will very much depend on the academic structure, the quality of courseware, the strength of the delivery and support systems. In the case of USM a very rough and simplistic costing indicates that in 1985, the cost of maintaining an off-campus student carrying an 18-credit unit workload per academic year amounted to about MYR.3,094. Presuming that this student successfully carries the same workload for the next five years, he would cost the University about MYR.15,472 for the 90 credits (1985 value). In the final year as a full-time residential student he would cost the taxpayer between MYR.8,000-MYR.10,000 (1985 value) for one year. This would mean the output cost of the off-campus student will be between MYR.23,472 and MYR.25,472. A similar student in the on-campus mode would have cost between 32,000 and 40,000, or about 27.37 per cent more than his off-campus counterpart. This conclusion is based on the fact that the above mentioned off-campus student and the rest of his cohort will continuously be successful at every stage of their study and either graduate in the minimum time or continue to be in the system till they graduate. Once again our experience in the USM indicate that less than 70 per cent of every cohort graduate in the minimum stipulated

time and perhaps as much as 15 per cent fail to complete the program. Therefore one has to assume that the above-quoted cost figures are an underestimate. One other aspect of establishing cost effectiveness which I have not taken into consideration here is the opportunity costs (savings) a nation acquires in processing students through the distance education mode and the number of years such graduates will contribute to the nation's manpower needs after graduation. Clearly in the case of the USM's program where 99 per cent of the students are in years in their professions making further contribution to societal needs. Clearly the USM's Off-Campus Program can be considered cost effective even as it is. However it cannot be purveyed as the most economical of systems - a situation which is not beyond reach provided the University or Government increases its enrolments by multiple folds or the University reduces the quality of its educational enterprise drastically. Both are unlikely to occur in the foreseeable future.

6.4 The future of distance education in Malaysia

Given Malaysia's demographic picture, her manpower needs and the dearth of educational opportunities especially in the tertiary sector, distance education should have a meaningful role to play. I emphasize tertiary education because it is the one sector of the country's educational scheme where present and future (Fifth Malaysia Plan) provisions are woefully inadequate against demand. The country seems to be well on the way to meeting all of its needs at least up to the turn of the century for formal school, teacher training, career, technical and vocational education. However there does not seem to be any coordinated attempt at meeting the continuing education needs of the population - neither is there any centralized provision being made for addressing the life-long educational needs of the rural agricultural communities. There are, however, provisions being made available by the extension arms of the various policymakers concerned that these provisions would suffice for now.

Though distance education via an Open University through the mass media has been discussed by senior educators and politicians, no definite stand has been taken and if taken has not been announced by the Government. The Fifth Malaysia Plan is also silent on this. Given this fact and the current economic downturn, one can only make the grim prediction that major developments are unlikely to happen soon. However, the Universiti Sains Malaysia, as part of the Fifth Malaysia Plan, is preparing to further expand its student intake as well as diversify its course offerings over the next five years. In doing it they will face two major hurdles. The first relates to financial resources - given the ambition to expand provisions to cater for 5,000 students⁽¹⁾ and still maintain high quality, it will need an

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- (1) M Mohammad and I T Kecik (1986) Distance Education at USM. A paper presented at the ACU meeting in Penang, 1986.

input of money far beyond what has been allocated to the Center. The second relates to academic talent. The university's current strength lies in its conventional academics. To induct them to newer areas of educational delivery will necessitate a massive in-house retooling program. This may have to be coupled with advanced course creation and development facilities that will considerably reduce the long-lead time that is currently needed from the course conceptualization to the course delivery stage.

7.0 The Maldives

The islands have a population of about 172,000 scattered among 200 islands. A little educational broadcasting takes place but otherwise the only notable use of distance teaching has been a recent initiative in teacher education, funded by the Australian Development Assistance Bureau.

Among the needs were the teaching of English as a second language and early childhood education. In the absence of suitable Australian programmes, two certificates from Massey University, New Zealand, have been adopted. The numbers are small, 6 students in Early Childhood Education, 4 for teaching English as a second language; but the certificates are designed for sparse and scattered enrolments. Course materials and the assessment of exercises and the ultimate assessment of performance are the responsibility of Massey staff; Australian aid supports not only the fees, but provides tutorial support at the Institute of Male. Most of the candidates are graduates.

There have been several proposals with regard to distance education for non-formal and community education, using an open-university type programme. Although nothing has yet resulted, the authorities consider that some form of distance education will be necessary in the future to educate both children and adults.

8.0 Singapore

Singapore now has primary and secondary education for all, and a national university and polytechnics. Distance education is not at present important. The Singapore Broadcasting Corporation in association with the university and polytechnics is considering plans to link classrooms and living rooms, using a cable television network. Apart from this, distance education is left to the private sector. A local organisation, Stamford College, offers technical and commercial courses in classes and by correspondence. A number of foreign organisations and universities also operate, mostly on a small scale. These include:

Wolsey Hall and University of Warwick, UK, distance MBA programme. An associated textbook is being published locally in Singapore. It will cost about \$25,000-30,000 (Singapore) to graduate;

Western Australian Institute of Technology; business degrees are offered on a partly distance mode. Students receive cyclostyled

notes, tutors visit occasionally from Australia, and students should attend an orientation course annually for 6 weeks in Perth. The cost is about \$8,000 (Singapore) annually for 3 years.

Western Australian College of Advanced Education; bachelors' degree in communication. This is offered in a similar mode to WAIT courses, but is slightly less expensive.

Royal Melbourne Institute of Technology; working with Singapore polytechnic to develop a split degree programme.

9.0 Sri Lanka(1)

9.1 Introduction

Distance Education as we understand it today, was introduced to Sri Lanka in 1976 with the establishment of the Sri Lanka Institute of Distance Education (SLIDE). The objective of the SLIDE was to provide tertiary level education in the fields of mathematics, science, management and technical studies to those who were unable to continue higher education in the institutes of higher learning due to socio-economic and other reasons.

The SLIDE inaugurated and conducted 4 main programmes:

- (1) Higher National Diploma in Management Studies;
- (2) National Diploma in Science;
- (3) National Diploma in Mathematics;
- (4) Higher National Diploma in Technology (Electrical and Electronics and Telecommunication Technology).

The Open University of Sri Lanka

The SLIDE was just four years old when it was absorbed into the newly created Open University of Sri Lanka.

The Universities Act No.16 of 1978 provided for the establishment of an 'Open University for the purpose of providing Higher Education facilities to those who are not students of any of the Universities, Campuses of Universities, University College or Institutions recognised for the purpose of providing courses of study approved for the examination of any of the aforesaid Higher Educational Institutions'.

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- (1) This account is an abbreviated version of Distance Education in Sri Lanka', a paper prepared by Dr D A Kotelawe, assisted by Mr N Samarasundera, for the Regional Seminar on Distance Education, 26 November - 3 December 1986, organised by the Asian Development Bank in collaboration with Sukothai Thammathirat Open University, Thailand, and in cooperation with Unesco Regional Office, Bangkok. The paper is reproduced by kind permission of ADB and the author.

Accordingly, the OUSL was established by Ordinance in mid-1980. The OUSL has autonomous status comparable to other Universities established by the Universities Act of 1978. However, it differs in structure from other Universities in keeping with its special objectives.

The OUSL is not merely to cater to those failing to gain admission to the conventional universities. It is also to provide for continuing education to those who are already employed as can be seen from the incorporation of the SLIDE and the ESA which catered not only to Higher Education, but to professional training of those already employed.

The administrative structure of the OUSL is different from that of other universities. Its main policy-making body is the Council which controls finance and policy matters including academic. Its academic policy and function is determined at the primary level by two Boards of Study (viz. The Board of Study for Humanities, Social Sciences and Management and the Board of Study of Mathematics, Science and Technology). The purely administrative functions are under the charge of a Registrar, while the educational services at the Regional Centres are overlooked by a Director of Regional Services. The Bursar is in charge of the financial administration under the supervision of the Registrar.

The Board of Study for Humanities, Social Science and Management conducts the following programme of study:

Certificate in Pre-School Education	- 1 year program
Certificate in Entrepreneurship	- 1 year program
Certificate in Professional English	- 1 year program
LL.B. Degree Program	- 4 year program
Post-graduate Diploma in Education	- 2 year program

In addition, the Board of Study provides a support programme in English for Science and Technology for the Board of Study for Mathematics, Science and Technology. A further course, English for Legal Studies, is also provided to service the LL.B. Degree Programme.

The Board of Study for Mathematics, Science and Technology has a more streamlined structure of programs of study. The Board has a well graded progression of programs as follows: foundations, certificate, diploma, bachelor's degree, post-graduate, and continuing education.

The Foundation courses are the gateway to the other programs of Study. The areas of study offered in general sciences are: mathematics, physics, chemistry, botany, and zoology.

A combination of these subjects can be offered for the Degree of Bachelor of Science.

In the Technology area, the following programs are offered: civil, communications, electrical, electronics, mechanical and textiles.

The current student Enrolment in the Programs of Study of the two Boards of Study of the OUSL is as follows:

Pre-school Education	-	271
Entrepreneurship	-	159
Professional English	-	1,967
Post-graduate Diploma in Education	-	1,388
Law (LL.B)	-	554 (only for 1st year)
Science Degree	-	1,487 (including Foundation Level)
Diploma in Technology	-	3,430 (including Foundation Level)
Engineering Degree	-	31
		<u>9,287</u>

The media of instruction used are as follows:

(a) Printed material

The main medium of instruction is the printed course material. Course material is prepared by specially selected course teams from both within and without, and every effort is made to follow the principles of instructional technology for distance study in the preparation of course material.

(b) Audio and video tapes

Audio cassettes are used to some extent to supplement printed material, and video very much less. The radio and television are not used as a direct medium of instruction, even though the OUSL does broadcast some general education material. Preliminary steps have been taken for the production and audio and video cassettes on a larger scale in the future. Since the academic staff has been trained in conventional Universities, efforts have been and are being taken to keep the lesson writers informed and instructed in the appropriate use of print and electronic media through workshops, seminars and handouts.

(c) Computers

Computers are not being used in instruction at present, and are as yet at an experimental stage as a medium of instruction.

(d) Face-to-face teaching

Face-to-face teaching makes an important component of instruction. This is done through workshops, seminars and laboratory work, the scope and frequency of which is determined by the particular character and needs of a program of study. (eg Face-to-face instruction is most frequent in the Professional

English programme as language teaching requires a large element of interaction with the teacher.)

(e) Two-way communication

Assignments form an important element in the teaching process. They are marked and returned to students with comments. Assignments carry a component of marks in the final examination grade.

(f) Regional services

The OUSL is presently being provided with a fully equipped Press, a Publishing Unit to handle the publishing aspects of instructional material, and an Audio Visual Unit to produce audio, video and other related material. A system of Regional Centres and Study Centres help to service the students in distant areas. They serve both as resource centres and as places where face-to-face instruction is provided. The establishment of a fully-fledged Institute of Instructional Technology is being seriously considered.

9.2 Distance Education for Teacher Training

Until recently the minimum academic qualifications required of persons seeking to enter the teaching profession was the General Certificate of Education (Ordinary Level). The required qualification is now upgraded to included passes in three subjects at the General Certificate of Education (Advanced Level).

There are over 28,000 untrained non-graduate teachers with only GCE Ordinary Level and Advanced Level qualifications. The Ministry of Education has embarked on a programme of training them through distance education methods. For this purpose the Ministry has set up a unit under a Director of Education, and has obtained aid from the Swedish International Development Agency (SIDA). The programme began in 1979 with courses for the training of school and regional administrators. The teacher training programme has five components as follows:

- (a) Printed material supplemented by audio visual material;
- (b) Assignments;
- (c) Contract lessons (at monthly intervals);
- (d) Local or Regional Centres;
- (e) Practical training.

The ministry programme started by training the trainers. Personnel necessary for the infrastructure of a distance education establishment such as those involved in the production of course material, their layout, printing and distribution, tutoring and evaluation and examination work were trained. In these tasks the Ministry was assisted by specialists from LiberHermods and the University of Lund. The inputs of these specialists have been most fruitful and they continue to be obtained.

The following courses of teacher education are currently being conducted for about 9,000 teachers:

- (a) Elementary education;
- (b) Mathematics education for secondary level;
- (c) Science education for secondary level.

9.3 Problems and prospects

Distance education in Sri Lanka, first introduced to meet pressing educational and training needs, is now about 20 years old. However, the inadequate understanding of the concept at various levels beginning with the general public has been a hindrance to its further development. This factor is at least partly responsible for the inadequate funding made available for the development of an inadequate infrastructure. This in turn makes it difficult for distance education institutions to serve their students as required. Hence, the prospects held out by distance education institutions as a solution to pressing large scale educational and training problems are not fully realised yet. However, steps are now underway to remedy this situation.

Training of educators is a serious problem. Most educators who come into distance education come with backgrounds in conventional education. Inculcating in them the concept and methodologies of distance education is a task to be undertaken if distance education institutions are to progress rapidly.

The electronic media are not adequately utilised in distance education at present. Audio, video and computers are used only sparingly or they are at an experimental stage. Investment in the development of these media could immensely help in the tasks undertaken by the distance education institutions.

At the OUSL there is a heavy bias in favour of Science and Technology in the structure of programs. This involves heavier expenditure and more complex teaching arrangements. Greater use of audio and video as well as computers, it is believed, could help overcome some of these financial and organisational problems.

Distance education offers solutions to the education of young hopefuls as well as those already employed. Opening avenues of obtaining a qualification for the young by developing new courses and programs can help the young. For those who obtain a qualification in the technical education system of the country as well as in the teacher education system, the OUSL could provide programs for further career development. For those employed with fully professional qualifications like engineers and lawyers, it could provide courses for updating their knowledge.

10. Conclusions

The Commonwealth countries in Asia can boast a few modest, reasonably successful initiatives in distance education; but, overall, there is

little. The need for more opportunities is particularly acute at higher levels, and two private initiatives are particularly important for the development of distance education both within the region and as a model for educational expansion elsewhere. The Open College in Hong Kong was the first such initiative. It is a parasitic institution, using courses from other institutions as well as the usual use of teachers from the formal sector as tutors in their spare time. The Open College is totally funded from student fees, and the cost per student for the equivalent of a one-year full-time degree is HK \$13,200 or UK £1,200 (1986 figures, considerably less than an average per student cost at the UK Open University of £1,800 per year)(1). The use of existing materials wherever possible can thus dramatically reduce costs. The second such venture, DISTED services in Malaysia, is still in its infancy.

II. EXPERIENCE OF COOPERATION

1.0 Exchange of materials

In Asia the Open College of the University of Asia and DISTED services, Malaysia, operate by offering course materials developed by other institutions. The establishment of these systems is not simply a matter of purchasing materials, but relies on discussion and agreement between partner institutions. In the course of the establishment of DISTED services a number of key points for consideration or negotiation in similar ventures have emerged.

1.1 Choosing partners

The selection of a supplying institution is affected by whether the local operation can grant its own degrees. Open College grants local degrees of the University of East Asia; DISTED services is not a degree-granting body, and therefore sought complete packages leading to graduation with the provider institution. Thus, its initial degrees will be Canadian or Australian. DISTED is, however, negotiating with Open College, and if agreement is reached DISTED students will also be able to opt for a University of East Asia package which in itself is composed of courses from several sources. It is also probable that the various providers of courses to DISTED will agree on cross accreditation, so that an Australian university will recognise Canadian credits, and vice versa. Initial discussions with the providers suggest that this will be acceptable.

1.2 Gaining approval

For Malaysia, the financial advantages of DISTED services to the individual and the economy are considerable. Study with DISTED will cost about \$4,000 Malaysian a year as compared with \$40,000 Malaysian a year for a Malaysian in Canada. For Canada there are advantages too in being a partner. It is not at present possible to finance and

(1) Open College figures from Don Swift; Open University figures from Ralph Smith, UK Open University, verbally presented in conference.

accommodate large numbers of Malaysians in Canadian Universities. It is however, possible that some Malaysians may complete split-site programmes, doing the first two years' study in Malaysia and a final year at a Canadian University. Thus, a reasonable programme for Malaysians can be sustained. For this to happen, it is necessary for DISTED to select degree packages where the credits will provide a good basis for transfer to face-to-face study. This arrangement may also result in higher standards of performance among Malaysians in Canada, as their performance will have been monitored prior to their arrival in Canada.

1.3 Selecting courses

The factors described above mean that there are several criteria for course selection. Student demand and suitability of course content are obvious requirements; accreditation patterns and possibilities are also crucial, especially for a non-degree granting organisation.

1.4 Assessment and registration procedures

Since DISTED students are attached to the providing institutions, arrangements have to be made to control progress and standards. The following arrangements have been made with the Open Learning Institution, the Canadian partner:

- * registration needs to be direct with the provider, through DISTED services; a computer-based communications system is highly desirable for this;
- * the contract between provider and user needs to agree procedures for appointing and monitoring local tutors;
- * the contract needs to specify procedures for conducting examinations; in the case of DISTED services and OLI, examinations will be marked in Canada and no cheap and rapid means of transferring exam answers has yet been identified. Air couriers will be used.

1.5 Expansion

An initial agreement between partners can contain potential for expansion. The agreement between OLI and DISTED services makes DISTED the agent for OLI in Brunei and Singapore, although no services are as yet offered in these countries, and OLI is the agent for DISTED services for procuring courses from other Canadian Universities.

1.6 Problems

Some financial hurdles have been set before DISTED. It had to negotiate so that its students in Malaysia get the same tax concessions as other Malaysians paying for education from abroad. Another difficulty has been copyright payment. Provider institutions will have obtained copyright for the use of extracts only in the country of origin, Canada or Australia. These extracts may be

substantial where a course is designed as a study guide. The payment required to obtain rights for use in Malaysia (which, in fact, is best negotiated in terms of world rights) can be substantial, amounting to several thousand dollars. While costs will be recovered over a few years, this kind of capital outlay is difficult and out of line for a model of distance education which otherwise has low start-up costs.

2.0 Cooperation on training

2.1 Unesco

Unesco's lively programme to encourage innovation in higher education in the Asia/Pacific Region is described elsewhere in the paper on the SW Pacific, and involvement of various countries in the region has been mentioned earlier. All that needs to be said here is that the series of seminars has resulted in the production of some training materials for distance educators in the region, and has strengthened links between institutions and individuals who work in them.

2.2 Sri Lanka Ministry of Education: Swedish International Development Agency (SIDA)

The in-service teacher training scheme has been developed with the help of Swedish distance educators, funded by SIDA. A three-year scheme of support has included training courses in Sri Lanka and attachments for Sri Lankans in Sweden, in order to develop course design and production and administrative skills amongst project staff.

SIDA staff have also helped with some training at the Sri Lanka Open University, the Rector of the Fernuniversitet, Germany, has provided advice on the production of printed materials, while Japan has provided equipment and training for staff to use it.

2.3 Outside and international training

Training in distance education for individuals from the region has been insignificant, as far as recognised courses are concerned.

IEC courses

About seven individuals from the six countries have participated in either the ULIE/IEC four months course or Masters' courses, rather a small number.

South Australian College of Advanced Education

A diploma in distance education, to be studied at a distance, is available in some countries, but only one or two individuals from the region have enrolled.

University of Surrey

Parts of the diploma in the Practice of Higher Education, studied at a distance, were developed in collaboration with Malaysia, and

initially several Malaysians took the course. Numbers have now diminished.

The Asia and Pacific Institute for Broadcasting Development

AIBD is based in Kuala Lumpur. Various broadcasting agencies in the region have a fairly close association with AIBD, and some broadcasters associated with distance education have attended its courses.

3.0 Personnel exchanges and training

Over the last few years, a major collaborative venture has taken place, with the Universiti Sains Malaysia and the Open Learning Institute, Canada as the main partners, together with other major and minor associated links. As this experience is of some importance as a model, it is described below at some length.*

3.1 Initial steps

USM uses as course writers university lecturers from the mainstream. Right from the start of the Off-Campus programme, there was a serious need to reorient these part-time writers to their new job. Dr Dhanarajan as Coordinator of the science programme recognised this need and made efforts to develop a training programme. Up to 1982 there were three training workshops, two with UKOU consultants, and one with IEC. But occasional one-off workshops were not producing the goods - finished courses - and in late 1982 an agreement was reached with Australia for a long-term programme, followed by an agreement with OLI in 1983.

3.2 The components

3.2.1 Component 1: The Australian agreement

Deakin University, Australia, offered to train social sciences and arts writers, two for each subject; Murdoch University would take maths and physics writers. A scheme was agreed for three years, with writers to be trained in Australia. Managers at USM would also have opportunities to visit Australia to broaden their perspective. The project was to be funded by the Australian Universities' International Development programme.

3.2.2 Component 2: OLI/USM demonstration project

In 1983 a similar agreement was reached with OLI, funded at around \$50,000 Canadian by CIDA, to train two chemistry and two biology writers. A Canadian spent one month in late 1983 with USM starting with process, then the four writers came to OLI in early 1984.

* The account is based on an extended tape-recorded interview with Shannon Timmers of OLI and Raj Dhanarajan of USM.

3.2.3 Component 3: A three year OLI/USM agreement

The pattern was to continue with four people a year, and would also involve training the course developers, (that is, the Malaysians who would train other writers), supporting the development of materials, and upgrading the USM production system. As such it was a package to set the whole production process on a solid footing. This project was costed at about \$80,000 Canadian a year.

3.2.4 Component 4: Equipment grants

With the emphasis on course production, progress was held back as USM equipment needed upgrading. In 1984 two extra grants of \$75,000 Canadian were made to allow USM to upgrade its computing and word processing equipment and provide a facility whereby diskettes could be passed directly between OLI and USM. This extended to the introduction of laser printing at USM, so that a complete new production system could be linked with the writing.

3.2.5 Component 5: Technical assistance

OLI had experience in course development, media production and print production which could be of use to USM. There was also expertise with data processing, and scope for training middle level management. A new proposal was submitted to CIDA in 1984, but finally approved only in 1986. The budget was \$500,000 over 3 years, based on the same kind of counterpart system. This meant that from 1986 the exchange programme has changed, with counterparts agreeing on specific work plans for their period of partnership.

3.2.6 Component 6: Tripartite agreement

In 1984, OLI and USM had signed a memorandum of understanding. In 1986, this was extended to include the Universitas Terbuka in Indonesia. This agreement was to share course material, initially as training models, but also with a recognition that USM had strength in the sciences and UT strength in the arts subjects, which might lead ultimately to full exchange of courses. The OLI/UT training links, described later in section 6,9, were also, incidentally, timed so that Indonesians and Malaysians came to Canada together.

3.3 Comparison of approaches

The Canadian focus was on management of the course development process. Actual production was stressed, by making sure that a plan was made during the initial visit from Canada to Malaysia, and writers were required to complete two units before coming to Canada. During the two month period in Canada a large segment of the writing was completed.

In Australia, the maths and science writing went well. This was probably partly due to the fact that the syllabus was easily translated into a course design. In arts and social sciences, in contrast, considerable work was needed to develop a course design.

The arts and social science writers therefore started at a disadvantage.

With OLI, a clear plan was made at the beginning, and has been adhered to ever since. With Deakin, the plan changed every year, to try to produce more satisfactory results, but to little positive effect.

Another difference was in the approach. The Australians, and Deakin in particular, put the emphasis on training and research, as a preliminary to effective writing. OLI on the other hand had production as a priority. In fact a modelling system was introduced on the microcomputers for developing the course units, which resulted in greater productivity without any loss of quality. This technique also had an enduring benefit in that writers learnt to handle word processors.

A further difference related to openness. OLI and USM freely exchanged reports on progress. USM hardly ever saw a paper from Deakin. This made sensible development difficult. At the back of this was, probably, lack of understanding of differences of procedure, in that the Australians may not have realised that reports to senior personnel in Malaysia would not automatically reach the actual practitioners.

Deakin University used a team approach to course development, while the other institutions used a partnership of editor and writer. The USM writers sent to Deakin attended seminars on programme development, when they had expected simply to get down to writing.

3.4 Results

3.4.1 USM

USM now has about 25 good science courses, and 10 good non-science courses. Now after several years of the Off-Campus programme it has a slate of materials that can stand comparison with any. It also has equipment to support its production system, and uses an established model for course design which encourages a high standard.

The achievements in course production are varied. 16 writers in all were attached to OLI and 16 to Murdoch, and 75% of these produced good materials. 36 non-science writers went to Deakin, and only a handful produced good materials, with only about three excellent ones.

The innovations in course development methods and the acquisition and use of new equipment have improved overall productivity and quality at USM. The Off-campus Unit has been able to shift from traditional methods of publishing to modern 'desktop' approaches, with resultant reductions in production time, combined with a better product.

The use of new technology has had an impact on USM as a whole, for example the registration system has been streamlined.

3.4.2 OLI

Involvement in the project has brought benefits to OLI staff in the form of job satisfaction. At a time of lack of job mobility in Canada, staff have had the opportunity to take part in a stimulating partnership. Those that have had contacts with Malaysians have frequently gained new enthusiasm, confidence, and an assurance that their skills are of value. There is a noticeable increase in productivity among staff after such contacts, although this has to be set against the loss of the labour during consultancy work.

3.4.3 General

OLI and USM have developed a system which uses a computer to provide a framework for the construction of units. In contexts where writing tends to be concentrated in short bursts at workshops or during attachments, this modelling system has proved of great value. It also promises well as a model of course development for the region, well-suited to large open universities which need to develop a big range of materials rapidly. The project has combined training in course design and writing with the introduction of suitable easy to use production technology.

3.5 **Contributions to success**

In assessing the OLI/USM partnership, it seems best simply to list points which may have contributed to the success of the venture. Future collaborative projects could serve to confirm which of these features are critical for success.

- * The partners were prepared to act before the money came;
- * Personal partnerships and agreements were critical;
- * Liberal communication between partners was essential. This needed to include visits by co-ordinators in both directions. A recent innovation has been the requirement that the Malaysian co-ordinator accompanies trainers to Canada, in order to follow up training effectively;
- * The partner institutions discovered that skills in all sorts of activities could be shared: counterpart relationships were beneficial in technical areas such as printing as well as in course design;
- * The partners needed to be ready to extend and change the agenda, but in a planned way, and with an understanding that the relationship would eventually dissolve;
- * The groups from Malaysia were sufficiently united to be able to share their skills, such as skills at the keyboard for word processing and skills in English to help the less experienced to participate fully;

- * The contrast between the science and arts courses is interesting. While at this stage, judgements on the quality of courses are based on assessment of materials rather than students, the initial reactions suggest that we need to lay a ghost. Conventional wisdom says science is more difficult to teach at a distance than arts; experience says science materials are easier to write well than arts. A sensible conclusion to draw is that a great deal of the fuss made over teaching science at a distance is unnecessary.
- * The Canadian co-ordinator visited Malaysia regularly before exchanges took place, partly to plan programmes, but also to assist in the nomination of suitable candidates and to become aware of their roles and training needs;
- * The Canadian approach aimed to develop individually tailored programmes, with a one-to-one link between individuals. The approach was to respond to the needs of USM rather than to start with a model to attain;
- * The responsiveness of CIDA as the funding agency enabled the partners to adapt the programme rapidly. CIDA in Canada and the High Commission in Malaysia were equally helpful.

3.6 Difficulties

The partnership has faced many difficulties. Those that deserve particular mention are:

- * Staffing of training programmes. OLI is a working institution, not a consultancy body. Its staff are in touch with day-to-day practice of distance education and are thus ideally placed to advise others; at the same time, they have skilled in certain aspects of distance education; second, a training assignment may require someone to leave a job half done at a point where another cannot easily take over.
- * The administrative burden on the co-ordinator at OLI becomes greater, the more different functions and different institutions are involved. This means that while more trainees apparently bring economies of scale, such economies are countered by increasing stress for the co-ordinator. To indicate the changed magnitude of activity, six transatlantic journeys in 1985 have grown to about 75 in 1986, including a second Asian link project.
- * Where the contacts are concerned with course development, it is important to ensure that linked institutions have adopted similar patterns of course development. One probable reason for the relative failure of the Deakin/USM link, was the mismatch between the course team approach used by Deakin and the course adviser approach used by USM.
- * varied individualised training programmes are difficult to conduct without good training materials. OLI has felt the lack

of a comprehensive bank of materials.

- * because of the nature of USM's programme, it is difficult to assert that the link is cost-effective. The University obliges the off-campus programme to include courses for topics of minority interest at high levels. The costs of the strategy, if it is to be assessed as a model, need to be separated from the actual per student costs, in cases where student numbers are very low.
- * with four institutions in three different continents involved, a meeting between all four has not been possible.
- * selection of candidates for training becomes an issue over the long-term. In the initial years, groups emerge; later, it becomes more a matter of selecting individuals who have not yet had a turn, which can result in groups which lack cohesion and are of variable quality.

4.0 Adaptation of materials

To help the Open University of Sri Lanka to develop a mathematics foundation course, the British Council funded collaboration between UKOU and OUSL staff to adapt selected UKOU courses for use in Sri Lanka. The courses had to be fitted to the context and altered to print-based rather than multi-media materials. UKOU lecturers visited Sri Lanka regularly and worked with Sri Lankan lecturers until the materials were complete. OUSL now feel that this collaborative experience was useful to them in that through it they acquired course material that could serve as a model for other courses. As a method of acquiring a course, however, they found it unsatisfactory, as it was laborious and time-consuming.

5.0 Collaboration on research

- 5.1 A multi-country research programme, sponsored by International Research and Development Centre, Canada, is currently nearing completion. The project started in 1984, and is due to finish in 1987. It started as a result of a contact between Dr Dhanarajan of the Universiti Sains Malaysia and the IDRC Social Science division. Discussions concerning the need for research in distance education led to a meeting in Penang Malaysia, which various Asian distance education institutions were invited to attend bringing with them proposals. Four institutions arrived with proposals; the Allama Iqbal Open University, Pakistan; the Universitas Terbuka, Indonesia; the Sukhothai Thammathirat Open University, Thailand; and the Universiti Sains Malaysia. A representative of the Open Learning Institute Canada also attended, and has remained associated with the project throughout as research adviser, with Dr Dhanarajan of USM as co-ordinator. The various projects are as follows:

STOU, Thailand: a study of the impact of STOU graduates in Thailand, considering how far the expectations of both the students and their employers have been met, and the attitudes of

employers to STOU. Two researchers are working on the project which is nearly complete.

UT, Indonesia: an investigation of alternative student support systems, comparing group study with four different kinds of leadership: a university lecturer, a graduate teacher, a senior student from the formal system acting as mentor, and finally a study centre with no formal arrangements. Two researchers are working on the project which is nearly complete.

USM, Malaysia: the research aims to improve the quality of instruction and of delivery through a study of student characteristics. These will be related to their styles of learning and their conception of the learning system, and correlated with exam results. Four researchers are working on the project and it is nearly complete.

AIU, Pakistan: the research is a study of dropouts. Two researchers are working on the project, which will be complete some time in 1987.

The research projects are each intended to take two years. The researchers meet annually to discuss methodology, and are also able to visit each other.

The project is funded at \$250,000 Canadian altogether. This will cover research over two years at all four institutions, with an equal division of the money, funds for three methodology meetings, visits to each other, consultancy and publication results.

So far, the project goes well. The group has been able to agree on research areas and methodology for all four projects, and has developed useful instruments and approaches to analysis. It is hoped that the programme will expand on completion of the initial phase, and develop into a comprehensive regional research network concerned with open learning in Asia.

- 5.2 A meeting in 1983 between representatives of the Universiti Sains Malaysia, the Open Learning Institute, Canada, and the University of the South Pacific looked at possibilities of course transfer in science subjects. Research ideas generated at this meeting are still to be followed up.

6.0 Other Asian links with Commonwealth Countries

- 6.1 UKOU/STOU: credit transfers at masters level. An agreement is being sought by STOU on a co-operative project to offer credit transfer for Masters' level courses in science and technology. STOU also forms one of its English courses from BBC materials.
- 6.2 University of Guelph/STOU: The two universities are currently signing agreements on co-operative programmes in the areas of non-traditional and educational delivery systems, the application of communication technology, an approach to computer-based learning materials, a post

graduate degree training, an exchange of educational and scientific materials, and an exchange of personnel.

- 6.3 AIOU/UKOU: Since its foundation, the Allama Iqbal Open University has received regular assistance and advice from the UKOU, funded by the British Government. In the early days, this meant both long-term attachments of OU staff in Pakistan and short consultancies, as well as training visits for AIOU staff to Britain. Substantial though reduced support is still provided.
- 6.4 AIOU/IEC: the International Extension College was asked to assist AIOU in developing a Functional Education Project for Rural Areas. A staff member was seconded and regular additional consultancy provided throughout the pilot period. The programme has been run entirely by the university since 1985. In addition, AIOU staff have regularly attended the IEC/ULIE annual course in distance teaching since 1977.
- 6.5 Korea Air and Correspondence University/UKOU: There have been exchanges of academic staff since 1985, and a similar exchange is expected to take place in 1987.
- 6.6 STOU/Indira Gandhi Open University: Exchange visits have taken place between Universities since IGNOU was established.
- 6.7 CTVRU/World Bank-British Council: Assistance from the World Bank and the British Council has led to considerable involvement of British distance educators in supporting distance education in China. Most contact has been with the UKOU.
- 6.8 Visayas State College of Agriculture, Philippines and Massey University, New Zealand: Massey University has helped to establish a post-graduate programme in agricultural extension; this is described in the regional paper on islands in the South West Pacific.
- 6.9 OLI Canada/Universitas Terbuka, Indonesia: The Indonesian Open University (UT) has received assistance from various aid agencies and distance education experts from open universities and other institutions within and outside the region. A major project of support has been funded by the Canadian International Development Agency. It stretches over four years, with the expectation that Indonesia will develop its own management and technical capacity in distance education over that period. It involves UT and three Canadian institutions: the University of British Columbia, Simon Fraser Institute, and the Open Learning Institute. Components include:
 - * Masters programmes in Canada for younger staff on distance education management;
 - * assistance with developing the registration system;
 - * development of the examination and testing system;
 - * assistance with developing new programmes;

- * ventures in sharing courses;
- * specialised technical training, eg in editing, course design, computing and data processing;
- * a feasibility study on the possibility of using OLI English as a second language materials at UT.

The link with OLI has led to contacts with USM, considerable sharing of experience between the three institutions, and possibilities of materials exchange between the two Asian institutions.

7.0 Regional initiatives in collaboration

7.1 DECASIA

The Distance Education Council for Asia was established as a regional association affiliated to International Council for Correspondence Education after the world conference in 1978. Initially, it seemed set to be dynamic and useful; but as several officers moved on to new jobs during their period of tenure, the Council lacked a stable leadership and never took off. An attempt is currently being made to establish a new grouping of Open Universities in Asia. Such an organisation could stimulate co-operation.

7.2 Asian Development Bank

Unesco's role in regional co-ordination has already been mentioned under training. More recently, the Asian Development Bank has expressed an interest in promoting the development of distance education in the region and in supporting collaboration. As witness to their seriousness, the ADB in co-operation with Unesco regional Office Bangkok and collaboration with STOU, Thailand, mounted a regional seminar on distance education in Asia in November 1986. This may lead to further substantial support from ADB to distance education in the Asia-Pacific region.

III. POSSIBILITIES FOR NEW INITIATIVES

1.0 Planned initiatives

- 1.1 Unesco policy: As mentioned in the paper on the South West Pacific, the Regional Office for Unesco has already provided considerable support to promoting co-operation in distance education in the Asia and Pacific region, and intends to continue this over the next few years. Higher Education and distance education at other levels are treated separately.

Unesco is particularly concerned that distance education should be used to address certain large sectors of the population which are particularly in need of assistance:

- * out-of-school children (here, distance education is seen as a mean to increase the teacher supply and improve the quality of teaching);
- * the rural population;
- * those migrating from rural areas to cities;

The four priorities for the next few years are:

- * Universal primary education;
- * Reduction of illiteracy;
- * Strengthening the link between education and work;
- * Assessing the implications of advances in technology, especially communications technology, and its usefulness for education.

Recently, Unesco has designated the Sukhothai Thammathirat Open University as the 'lead institution' in distance education in the region, and the University's Office of Documentation and Information is aiming to build up a resource collection in distance education.

1.2 The Asian Development Bank

The Asian Development Bank education division gives priority to supporting projects and providing technical assistance in the following areas:

- * technical and vocational education at secondary and post-secondary levels;
- * strengthening infrastructures through establishing resource centres, designing curricula, developing instructional materials, and promoting in-service training;
- * strengthening science education at secondary level.

In its current review, the ADB is interested in distance education as a cost-effective method of increasing access to education and improving quality.

The ADB will be preparing a new education sector policy paper during 1987 and it is likely that, as a result of the November 1986 seminar, this will include recommendations concerning the development of distance education in the region. These are likely to relate to sharing of information, staff training, promotion of research, and the greater use of new technology, including use of satellite and computer-based communications. Consideration may be given to the idea of establishing a regional centre for distance education.

1.3 AMIC

In recognition of the need for staff training in distance education in Asia, AMIC in collaboration with OLI, Canada and the International Extension College is running a seminar in mid 1987 which will explore in depth with senior management of distance teaching institutions their needs for staff training, and will result in a full and detailed long-term plan for training of producers of all kinds of course materials in the region.

1.4 The Open Universities

The Open Universities in Asia are in the process of forming a new association. Its objectives are not yet known.

2.0 Proposals for consideration*

2.1 A regional centre

There is a strong expression of a need for a regional centre for distance education, which would collect and distribute information, hold resources, co-ordinate and provide training and promote research. It is possible that an organisation within the region may establish such a centre, but this could take some time. Meanwhile, a mechanism is needed to tap for the benefit of others the expertise and resources which are already available in the continent.

2.2 Strengthening distance education in science and technology

Suggestions for this have ranged from generalisations to specific ideas such as trying out mobile laboratories or experiment units, or encouraging greater exchange of materials between institutions. In fact, the Commonwealth countries in the region include two institutions which are particularly strong in science teaching, the Sri Lanka Open University and the Universiti Sains Malaysia, and some work has already been done on extending possibilities for exchange (see II 1.5.2). The next stage could be an action research project to develop techniques for improving science and technical education at a distance.

2.3 Strengthening regional and student support services

Many Asian distance education systems use a model of distance education which relies little on individual correspondence tuition but concentrates rather on study centres. There is considerable scope for the use of communication technologies to improve services in study

* The proposals included in sections 2.1, 2.4 and 2.5 may be put to ADB, and liaison with its Education Sector director is recommended during any discussion of these matters.

centres; and some interest in this has been expressed within the region. For example, the Sri Lankan Ministry of Education would welcome initiatives to help develop regional services in education. The telephone system has good coverage nationally with direct dialling. Sri Lanka has already made some studies of the potential of teleconferencing, and is interested in developing this and also investigating the potential of computer communications.

2.4 Extending communications by satellite

There is considerable interest in the region in the use of satellites to support distance education. This is linked with a concern that most distance education opportunities in the region do not reach the most disadvantaged groups, such as rural women or people in remote areas. Plans are being developed for substantial feasibility studies which should specify the most appropriate forms of satellite-based distance education and identify the nature of technical assistance required to establish and maintain such systems. Meanwhile, there is scope for pilot projects in satellite use in the region.

2.5 Developing resources for television for distance education

It is expected that the studies in 2.4 will suggest the establishment of a video training and production centre. If such a centre were to produce a hundred acceptable video programmes a year, initial estimates suggest start-up costs of US\$ 10,000,000 and annual running costs of US\$ 20,000,000 (estimates by ADB and Development Education Communications Unit, Ahmedabad).

2.6 Strengthening the private sector

The Open College model of distance education has been successful in Hong Kong and has now been adapted for Malaysia. There is scope for further initiatives, probably in Asia initially in the private sector, with Singapore and Brunei as possible candidates. (There are of course other candidates for such an initiative elsewhere in the world, including some in the state sector.) Either of the existing services could assist with expansion elsewhere, with modest assistance needed to publicise the service and start it up. Appendix 2 to this paper contains a proposal for a possible Commonwealth initiative to provide a similar service internationally.

2.7 Strengthening research

A specific contribution to strengthening Open Universities in the region would be to encourage further research projects, as the IDRC-funded project comes to an end and new proposals are developed. A second phase of research could also extend to non-university sectors, establishing a network and following procedures as described in I 1.5.1.

2.8 Training

2.8.1 Training of staff for distance education is widely recognised as a major need. While there are some international training programmes available (see I 2.1 and 2.3) and some bilateral training projects (see I 2.2 and 3), there is a need for much more training, including locally based courses. Section II 1.3 describes plans for identifying training needs, developing a programme, and preparing costed proposals.

Such a programme will need training material, and there is a case for a world survey of existing materials and the development of a bank of materials, including some commissioned where none exist at present. Such a project could be linked with the AMIC/IEC/OLI training project.

2.8.2 Some countries want local training facilities for senior professionals; for example, Sri Lanka has no facilities for university training of educational technologists.

2.8.3 Finally, inter-institutional visits are seen as an important component of or alternative to formal training.

Acknowledgements

Thanks are due to the Asian Development Bank and authors of papers commissioned by the Bank for permission to use substantial extracts from papers presented at the November 1986 seminar on distance education. In addition, the following assisted with contributions by letter or discussion: Dr Mohammed Selim, Unesco Regional Office, Bangkok; Dr Raj Dhanarajan, Universiti Sains Malaysia; Mr Cos Russo, Australian Development Assistance Bureau; Mr Shannon Timmers, Open Learning Institute; Mr Vijay Menon, AMIC; Mr Kotalaweale, Open University, Sri Lanka; Professor Don Swift, Open College of Hong Kong.

PAPER 3

COLLABORATION IN EXTERNAL STUDIES IN AUSTRALIA

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CHAPTER THREE

Introduction

"A substantial case can be made for rationalisation of external studies on general grounds. At present there are simply too many providers and the potential economies of scale are not adequately realised".

Hugh Hudson, Chairman, Commonwealth Tertiary Education Commission (CTEC). 6.7.86
Conference on Productivity in Tertiary Education.

"In educational terms there are significant benefits where external students receive the same courses, the same teachers, the same assessment and the same awards as face-to-face students who also benefit from the thorough preparation of course materials necessary for external presentation".

CTEC Review of Efficiency & Effectiveness 1984
Chapter 7, 7.16

Taken together these two statements go a long way towards explaining the dilemma confronting those responsible for co-operation, collaboration and rationalisation in tertiary sector external studies in Australia. If we are to take advantage of new technologies for distance education delivery we must reduce, if not eradicate, duplication in course offering. But, if we are to offer students the same awards regardless of study modes, we must maintain integrated curricula serving both internal and external studies within the awarding institutions. The challenge, therefore, is to demonstrate that collaboration can serve the interests of "on-campus" teaching and learning as well as those of distance education. "No Mode is an Island", but recognition of this is all too often lacking.

External Studies - Providers and Consumers

An extract from the CTEC. Review of Efficiency and Effectiveness in Higher Education, Chapter 7.

- 7.1 An important feature of the Australian higher education system is the opportunity it offers for students to undertake courses at locations which suit their needs. External studies courses play a vital role in providing education for those students who, for a variety of reasons, are unable to attend courses on-campus. This chapter examines the benefits of external studies or distance education, the consequences of the rapid growth over the last decade and the potential for better co-ordination and rationalisation of external studies in higher education.

Background

7.2 In the decade since 1975 the number of students undertaking external studies courses has increased much more rapidly than total students (see Figure 7.1). In universities the number of students doubled to over 16,000 in 1985 and in CAEs (Colleges of Advanced Education) it trebled to almost 29,000, as shown in Figure 7.2. Students enrolled externally now number some 45,000, or 12 per cent of total higher education students and about 8 per cent of total studentload. There are also over 55,000 external students in the TAFE (Technical and Further Education) system. The number of institutions offering courses in the external studies mode has grown from six before 1970 to 40; seven of these are universities and the remainder are advanced education institutions.

FIGURE 7.1

RELATIVE GROWTH IN HIGHER EDUCATION
EXTERNAL AND TOTAL STUDENTS - 1975 TO 1985

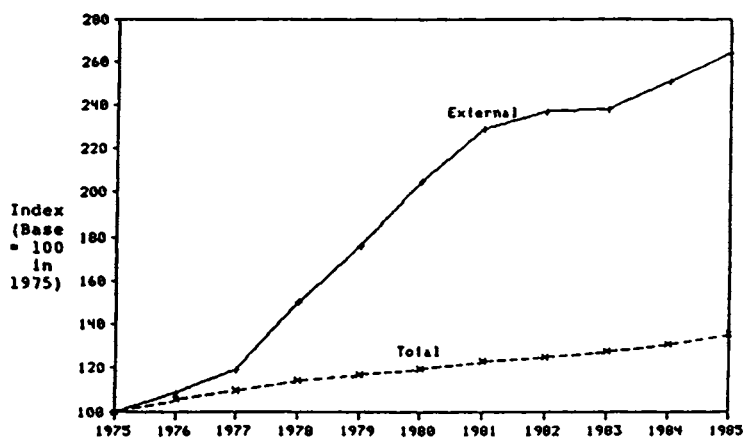
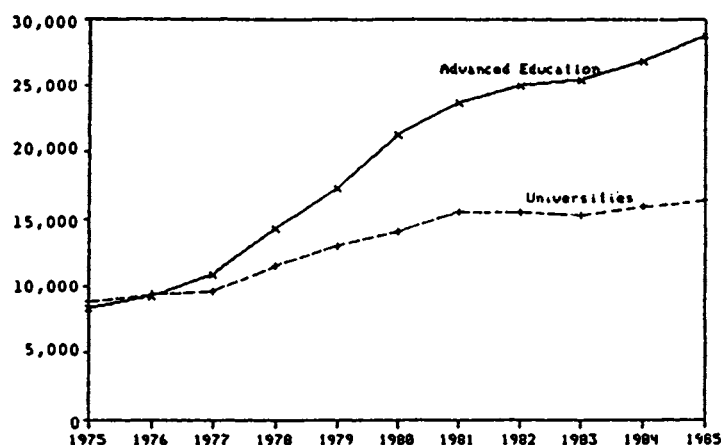


FIGURE 7.2
NUMBERS OF EXTERNAL STUDENTS
UNIVERSITIES AND CAEs - 1975 TO 1985



External Students

- 7.3 External students are not typical of students in general. Table 7.1 shows that they tend to be older - more than 60 per cent of external students in higher education are 30 years of age or over, compared to less than 30 per cent for all students in higher education. From Table 7.2 it can be seen that only 16 per cent of students commencing advanced education courses by external study in 1985 did so on the basis of final school examination qualifications. For universities, the proportion was 10 per cent. Most external students have had some previous experience of post-secondary education.

TABLE 7.1

EXTERNAL HIGHER EDUCATION STUDENTS BY AGE - 1985

Years of Age	External		Number	Total	
	Number	Proportion per cent		Number	Proportion per cent
Less than 30	17,191	37.7	265,643	71.1	
30 and over	28,405	62.3	104,677	28.3	
TOTAL	45,596	100.0	370,320	100.0	

TABLE 7.2

STUDENTS COMMENCING COURSES BY HIGHEST QUALIFICATION ON COMMENCEMENT - 1985

	<u>External</u>			<u>Total</u>	
	Number	Proportion	Number	Proportion	
		per cent		per cent	
ADVANCED EDUCATION (All Students)					
Previous higher education					
- completed	4,836	45.3	20,024	26.9	
- incomplete	1,259	11.8	8,420	11.3	
TAFE qualification	616	5.8	3,059	4.1	
Final School Examination	1,668	15.6	30,756	41.3	
College qualifying exam.	77	0.7	2,542	3.4	
Other (including overseas)	2,218	20.8	9,613	12.9	
TOTAL	10,674	100.0	74,414	100.0	
UNIVERSITY (Undergraduate Bachelor Degree Students)					
Previous higher education					
- completed	1,341	35.2	4,674	10.9	
- incomplete	545	14.3	4,864	11.3	
Final School Examination	416	10.9	26,204	61.1	
Other (including overseas)	1,508	39.6	7,145	16.7	
TOTAL	3,810	100.0	42,887	100.0	

- 7.4 External students are concentrated in only a few of the main fields of study provided in higher education. In advanced education the greatest numbers of external students are in the fields of education and commercial and business studies. In universities external students are most numerous in arts with significant numbers in education and economics/commerce.

Initiatives in Collaboration

Over the past five years a number of significant initiatives have been taken to foster collaboration in distance education by individual academics, programme committees and others, acting on behalf of providing institutions in the tertiary and the technical and further education sectors.

The following notes reflect my own perceptions of these developments.

1. Information Exchange

A National Directory of External Courses in Australia covering Universities, Colleges of Advanced Education and TAFE has been published in 1985 (for 1986) and 1986 (for 1987) by the School of External Studies and Continuing Education, University of Queensland with the financial assistance of CTEC and ASPESA (Australia & South Pacific External Studies Association).

During 1986, the Education Unit of Royal Melbourne Institute of Technology (RMIT) commenced development of a National Directory of Tertiary Education Courses on Viatel under the name of "Coursefinder". Phase I covers courses offered in the external mode with plans now in hand to extend the Directory to include on-campus courses.

As part of a national TAFE External Studies Network Scheme, agreement has been reached to publish all new course material in either hard copy or digital form and to make the digital stored material available either on floppy discs, or by direct transmission through Telecom Services to compatible terminals anywhere in Australia. In addition, consortium and bureau arrangements for the development, production and tutoring of selected courses by inter-state co-operation are in hand.

It is significant to note that TAFE equates more closely to a "single mode" distance education structure than to the "two-mode integrated" systems, which are characteristic of Australian external studies.

2. Materials Exchange

Mention has been made in the previous section of the TAFE National Network for exchange of materials in digital form.

Progress in materials exchange between Universities and CAEs involved in external studies has been very limited. Moran (1986) has commented on the situation in a report written following a study tour to Canada and the U.S.A. in 1985. Her starting point is the familiar rhetorical question "Why re-invent the wheel when there are excellent ones available elsewhere?". She notes that this rationale for collaboration in the development and production of courses is well known and the concept much applauded. However, in her view, there are two reasons why Australia has been slow in responding; academic and institutional attitudes and logistic problems in communication and timing. Whilst these are no doubt valid, I would add a third which is of equal, if not greater importance. In the integrated two-mode

system, an academic or group of academics buying-in course materials from another institution must be satisfied that this will meet the defined objectives of a single curriculum serving both their off-campus and on-campus students. The imported course unit or modules must be adopted as component parts of an award endorsed by the institution for all its graduates, not just those who are out of sight. Because academics are generally trained to be adaptive, perhaps even spontaneous, teachers in their face-to-face classes, this constraint is a real one. Those advocating materials exchange in the Australian system need to address it as an educational and staff development issue, rather than some personality flaw in the academic or as institutional myopia.

For some years Massey University in New Zealand and RMIT in Australia have been providing courses to serve the curriculum of the Open College of East Asia - a single mode institution.

3. Co-operation in Training and Personnel Exchanges

At the sub-regional level, Deakin University, Murdoch University and University Sains Malaysia (USM) have operated a collaborative scheme since 1983 under the sponsorship of the International Development Programme of Australian Universities and Colleges. The objective has been to share experience in course writing so as to assist a major rewrite of external mode courses at USM. At Deakin, USM academic staff received a structured course on distance education writing techniques, whereas at Murdoch the emphasis was on 'pairing' of USM and Murdoch scientists with shared disciplinary and course preparation interests. This scheme was concluded in 1986.

4. Joint Course Production

The reasons why this form of co-operation is not more extensively developed are probably the same as those outlined in a previous section on materials exchange. Gillard et al (1984) have described the scheme for "co-development" of courses which were to be constituent parts of the M.Ed. Programmes at Deakin and Queensland University. Three courses were planned, but only one eventuated, and the authors cite institutional self-interest concerning funding as the major impediment.

They point out that it is quite common for academics in different institutions to collaborate on research projects and that in many cases the success of research programmes depends upon this pooling of expertise and resources. For this co-operation to be reflected in co-operative course writing, the co-developed courses need to be offered by both institutions in parallel. "In this way, the academics involved achieve explicit recognition for their contributions to course development (acknowledgement of authorship, etc.) and for their contributions to teaching (students taking their course in their own institutions)" (Gillard et al p.79). It may be worth adding the now familiar proviso that, in the co-developed course, content would need to be available to students taking the course in their own institution in either the internal or external mode.

5. Joint Programme Development

The most significant and now widely known example of this approach to co-operation is the inter-University Womens Studies Programme established by Murdoch, Deakin and Queensland Universities in 1983. Its development has now been documented (Maclean 1985, Thornton 1986) and its viability demonstrated by 4 years of operation. Essentially, students draw on a pool of courses contributed by the three universities in order to complete a Major awarded by any one of them. The principle behind the scheme is therefore that of inter-institutional enrolment, backed by rationalisation of course offerings rather than by joint course writing or exchange of materials. A similar model may be emerging to provide for the external teaching of Nursing.

6. Inter-Institutional Enrolment

The "Toowoomba Accord" established in 1984 between the five university major providers of external studies has so far sought to further extend the principle of inter-institutional enrolment. Each participant university advertises to its own students a range of elective courses which can be taken externally from one or more of the others. Experience in the first two years suggests that the idea of broadening their choices by drawing on an enhanced range of general electives may be less attractive to students than the opportunity for them to lock in to specific courses tangential to their Majors.

7. Brokering

Whilst external studies is planned to operate largely independently of distance, vacation school requirements and other similar constraints have tended to produce State catchment areas. In Tasmania and the Northern Territory, which have no University external studies provision of their own, this has led to the development of educational brokering agencies operated by the North-West Council for Community Education and the Darwin Institute of Technology respectively. Through these agencies prospective external students in both the University and CAE sectors have been given advice and guidance in meeting requirements of distant institutions. Support has also been offered for locally resident students once they are enrolled.

8. Contracting

Walsh (1986) has produced an evaluation of contracting in Western Australia. Contracting is a system of collaboration which he sees as designed specifically to foster intersectoral collaboration. "In the context of Western Australia, contracting or country contracting as it is commonly known ...(is).... an agreement made between a tertiary institution and a regional College whereby the latter is licensed by the tertiary institution to teach certain of its award courses. The College provides staff and resources and the institution supplies the funds required". (Walsh p6-7). By the end of 1986, the first year of a number of CAE awards were being taught at six Country Colleges in

Western Australia. These awards ranged from the Bachelor of Business (WAIT - Western Australian Institute of Technology) and Graduate Diploma in Computer Studies (WACAE - Western Australian College of Advanced Education) to the Associateship in Agriculture (WAIT).

9. Offshore Distance Education

1984 saw the publication of two Reports which had considerable significance for the provision of courses overseas to non-Australian nationals. These were the Committee to review the Australian Overseas Aid Program (the Jackson Committee) and the Committee of Review of Private Overseas Student Policy (the Goldring Committee). Goldring, in particular, recognised the potential for external studies by commenting "that the opportunities for giving distance education an overseas focus would provide added advantages of economies of scale for the provision for such technology for Australians, as well as other direct benefits as a result of the extension of opportunities overseas". Several Australian tertiary institutions have taken initiatives. These include Darling Downs IAE (Institute of Adult Education), which has long had a particularly strong and effective entrepreneurial approach to distance education, the W.A. Institute of Technology, which has operated some "Outreach" teaching of award courses in Singapore and Warnambool IAE and the Murdoch University, which entered into agreement with the Malaysian agency Distel Services Sdn. Bhd. for the enrolment and teaching support of full fee-paying students taking external courses in Business Study and Maths/Computing respectively.

10. Efficiency and Effectiveness in External Study

The CTEC Review of Efficiency and Effectiveness, led by Mr Hugh Hudson, has made some very specific and unequivocal proposals for rationalisation of the number, status and roles of institutional providers of external studies. These proposals would strengthen the roles of regional institutions (Darling Downs, University of New England, Deakin University) as against metropolitan providers (Queensland, Macquarie) where this option exists and co-ordinate the activities of other providers where it does not. Significantly, CTEC vests in itself the responsibility for ensuring that rationalisation of institutional structures and off-course offerings does, in fact, occur. Emphasis in this review has been placed heavily on the preparation of course materials and it is regarded as axiomatic that "for the current traditional methods of teaching the minimum institutional enrolment necessary to support efficient operation of an external studies program would be at least 2000" (7.27) and "at least 150 enrolments per unit are desirable for an acceptable level of efficiency" (7.26). There is, however, little comment on the conditions necessary to ensure an acceptable level of teaching or tutoring effectiveness. Perhaps then we are led back to the dilemma posed at the outset, one which seems to lead inexorably towards increasing centralisation of course provision and an ever widening gulf between academic course writer and student consumer. When this happens, the challenge facing us will be to ensure that efficient delivery is not attained at the expense of effective learning.

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PAPER 4

COMMONWEALTH CO-OPERATION IN OPEN LEARNING: CANADA

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EXECUTIVE SUMMARY

Post-secondary education in Canada faces a major challenge: to provide access to a population scattered across a huge geographic area. Other components to this challenge include the bilingual, bi-cultural nature of the country and the low participation rate of Francophones, the disadvantaged Native population, the questions of federal-provincial jurisdiction over education, the autonomy of Canada's universities and the ever-increasing rate of change.

Distance Education addresses these issues as well as individual ones of job and family commitments and the challenge of self-directed learning.

Distance Education in Canada began nearly 100 years ago, with professional upgrading for teachers. This professional upgrading characteristic continued for many groups including accountants. In Canada over 40 post-secondary institutions now offer distance education programmes.

In recent years, provincial governments have undertaken various initiatives in open learning which have included the creation of TVOntario, the Knowledge Network of the West and the Télé-Université.

Canadian post-secondary institutions make use of all common technologies, including print, audio and video-cassettes, teleconferencing, television and radio. Some experimental work is being done in the newer technologies such as video disc, computers and teletext, videotext and Telidon.

Although most programmes are offered at the diploma, certificate or first level degree level, some masters level work is being done.

Most programmes offered are in the Social Sciences and Humanities, because of the problems involved in offering hard sciences with laboratory components.

Costs for course creation range from \$5,000 to over \$1 million depending upon the media used.

Most Canadian institutions are "dual-mode", offering both in-person and distance education teaching. Notable exceptions include Athabasca University, the Open Learning Institute and the Télé-Université.

Several new initiatives show promise, including a new Francophone national consortium and a distance education project in Northern Ontario.

Areas of need for future development include first degrees for Francophones, continuing professional education, professional degrees and science training for teachers.

Several Canadian institutions have experience in the utilization of each other's materials and some work in co-operative programme development is underway. Canadian institutions are active provincially, regionally, nationally, and internationally in co-operative ventures but most work is in a very early phase. Much remains to be done.

CHAPTER FOUR

PATTERNS OF DEVELOPMENT

Educational Needs, Priorities and Problems

The main challenge facing Canadian post-secondary education communities is that of easing education disadvantages caused by the vast size of the country and the isolation of hundreds of small human settlements. There is an urgency to open access to post-secondary education to people in the hinterland.

Also very high on this list of challenges is the bilingual nature of the Canadian population. Even though the vast majority of Francophones live within the borders of the province of Quebec, over one million more do live scattered throughout the rest of the country. Furthermore, a majority of those live more in the "fringe" areas than in central urban centres. Finally the overall participation rate of the Francophones at the post-secondary level is substantially lower than that of Anglophones.

Another cultural dimension of the Canadian situation is its native peoples, who are both under-educated and demographically scattered on "reserves" spread across the country. The Inuit population, scattered throughout the high arctic, creates a special challenge. Natives are consistently found at the very low end of the socio-economic scale wherever they are located in the country.

Post-secondary education in Canada falls under 10 separate provincial jurisdictions which are very jealously guarded. These 10 become one in their common opposition to any intrusion by the Federal Government in the field of education despite the fact that the latter has full jurisdiction over the Yukon and North West Territories, as well as the fact that much of the money spent by the provinces comes from the federal treasury through transfer payments. This, needless to say, tends to make progress somewhat slower than could be hoped for at times.

Another reality of the Canadian situation is "institutional autonomy" on the part of individual universities. This has had the unfortunate negative consequence of encouraging duplication of efforts rather than the potentially positive one of uncontrolled cooperation. However, recent stringent economic times have severely challenged the traditional way of thinking of the various institutions, and there is the growing evidence of inter-institutional, inter-provincial, and even inter-national cooperation in the recent past.

Finally, Canadians have been affected by the world-wide phenomenon of rapid change, as knowledge is expanding at an ever increasing pace to the point where the life span of some professions is being measured in years instead of decades. Lifelong learning has become a necessity recognised by federal and provincial governments and institutions. Professionals in various fields require periodical upgrading which often can only be provided adequately through distance education. This movement to distance education

to address the problem is definitely a trend in Canada and all indications are that it will increase in the future.

People's life styles have changed dramatically in the last several years. They demand a greater flexibility on the part of post-secondary institutions which are the providers of knowledge. Some people simply cannot fit into their life styles regular attendance at an institution. Their commitments to professional and home lives leave them no choice but to pursue their studies through distance education. Often the unavailability of programmes at suitable times or the on-going commitment of three hours a week for 13 or 26 weeks required by on-campus courses forces them to study through the distance education mode.

Because of the increasingly technological world evolving around us, equality of access to work will be based not only on skills and education, but on skills and education that are continuously updated. That is why we feel that professional continuing education will be a long term trend for this country.

Moreover, we have discovered in Canada over the last several years that a growing number of people who could study in the traditional classroom environment freely choose the distance education mode for reasons ranging from a greater control of "learning times" to the challenge of self-directed learning.

The greatest challenge in Canada is the provision of educational services to a small population of 256 million dispersed over a vast land of 3,851,809 square miles (9,976,186 square km.). Canada's demographic distribution is extremely uneven. More than 80% of the people can be found in a band of land 100 miles wide along the Canada-United States border, a strip which constitutes less than 10% of the land mass of the country. As an example, Ontario, the central province and the most populous one (eight million) has 91% of its population occupying approximately 9% of its surface. Even in this small area more than five million live in a small strip of land on the northern shore of Lake Ontario, a region referred to as the "Golden Horseshoe".

THE DEVELOPMENT OF DISTANCE EDUCATION IN CANADA

History

In Canada distance education at the university level started before the turn of the century, at Queen's University in Kingston, Ontario, with a programme of correspondence courses, which, in conjunction with its summer school, permitted adult students (mainly teachers) to earn a degree. This model was subsequently adopted by many other Canadian universities such as the University of Toronto, the University of Saskatchewan and the University of Ottawa. The latter, because of its bilingual nature provided some programmes to the Francophone population of the country.

The need to provide uniform standards of education across provincial borders by professional organizations led also to the development of print-based distance education programmes. University involvement in these programmes was at first concentrated at Queen's and the University of

Toronto. Within many professional groups and in particular in the various organizations of accountants, print-based course training became a requirement even for university graduates preparing for professional examinations.

The late 1960's and early 1970's saw the birth of a large number of distance education facilities including the Télé-Université du Québec, the Open Learning Institute of British Columbia (OLI) and Athabasca University. In addition, during the same period a variety of provincial communications authorities were created and given access and control over broadcast television networks. In the western part of the country ACCESS-Alberta was created and later in the '70's the Knowledge Network of the West (in British Columbia) (KNOW). In Ontario, the Ontario Educational Communications Authority, better known as TVOntario, was born. In Quebec, the major Francophone area of the country (with more than 80% of Canada's Francophone population) Radio-Quebec was launched with an education mandate.

More recently, in March 1984, the Ministers of Education of British Columbia, Alberta, Saskatchewan, Manitoba, the Northwest Territories, the Yukon and the Federal Ministers of Inter-Governmental Affairs signed a letter of agreement to create a Distance Education Committee to consider collaborative development and acquisition of distance education materials.

The "Interprovincial and territorial distance education committee" was created and is currently actively exploring potential projects.

In September of 1984 the British Columbia government created the Open University Consortium which included the three provincial universities, the Knowledge Network of the West and the Open Learning Institute. The Open University Consortium of British Columbia makes it possible for students to combine classroom-based and home-study courses from all member institutions in order to obtain a recognized university degree through the Open Learning Institute.

In the east, the Atlantic Provinces Commission of Higher Education created the new position of Director of the Office of Educational Communications. Work is still going on in that area to put in place an operational network to bring together the various post-secondary institutions in joint effort to make programmes available to the population at large.

Although the community college system has been slower to move into distance delivery, several large and innovative programmes exist. North Island College on Vancouver Island, Seneca College in Toronto and Confederation College in Thunder Bay have developed specialized programmes based largely on their geographic location.

At this time, over 40 Canadian universities and colleges offer distance education programmes, varying from selected courses to full diplomas, certificates and degrees.

Current Trends

Media Use

It would be fair to state that most currently-used technologies, being very familiar to most users, are not threatening, require little or no training for use and are often not even acknowledged to be technologies. These low-technology, high usability media include print, audio and video-cassettes, radio, television and telephone. The more sophisticated technologies involving video-discs and computers are still very much in an experimental mode and, while computers are gaining in acceptance, they are generally seen to be unfamiliar and difficult to use.

Following is a brief description of technologies currently in use in Canadian institutions. Not all are used in each institution, but various institutions have extensive experience in using each of these.

i) Print and Audio Cassettes

Some of the inherent characteristics which have maintained printed materials as the most widely-used resources in distance education are their virtually universal accessibility; the general availability and ease of use by students; and a less obvious but important practical advantage which is found in few of the other permanent media: additions, revisions and updates can be readily distributed to students and integrated with existing material while it is used. The advent of word processing, computerised design, typesetting, desk-top publishing and sophisticated high-speed duplicators and ink-jet and laser printers has greatly improved the potential for efficiency in the editorial and production processes which range from extreme simplicity to massive complexity in response to widely varying requirements in course design.

Audio-cassettes have some of the advantages of print media since recording/playback equipment is universally available. They are widely used both for essentially "one-way" and "interactive" communication, and provide an important advantage over most other media in that they are compatible with the automotive and "walkman" life styles. Various techniques for voice-compression to enable accelerated playback have been developed, and are now available in inexpensive portable equipment suited for home use. Production of small quantities of cassettes can be done by copying at high speed from a master to blank cassettes using moderately priced equipment, while efficient duplication of large quantities requires costly equipment and is usually done by commercial firms supplying the entertainment market. The University of Waterloo is Canada's largest user of audio-cassettes.

ii) Teleconferencing

Specialised equipment is a major consideration in successfully linking groups of individuals in separate locations via telephone circuits so that all can participate in common class meetings or tutorial discussions. Adding a visual linkage can be done in various ways, with monitors and cameras arranged in simple or complex arrays depending upon the size of the group and available resources. Various modes of visual data transmission

can be used, with separate audio and visual lines from the bridging points. Obviously until standard telephone equipment embodies the requisite features the possibilities for individuals to participate are somewhat restricted, and for group activities specialized equipment is a necessity. Typically, microphones, camera and speakers, monitors and some associated wiring and connecting equipment must be available to each site, while transmission lines and bridging facilities at a central point are either owned or leased. Private firms as well as telephone companies offer a wide range of equipment and services, at costs which compare in some cases favourably with alternatives involving extensive travel time for students and instructors. The social dynamics of groups involved in this mode of distance education is a complex study in itself. The University of Ottawa has developed expertise in this area and has teleconferenced programmes in French across the country.

iii) Television and Video-Cassettes

This is the technology most commonly associated with distance education perhaps because of the influential example of the British Open University, which both legitimised and provided a model for the use of a combination of these media and others in higher education. One element in this pattern is the utilization of publicly-supported facilities for broadcasting the television component of educational programmes, either on regular or cable channels and then encouraging repeated use of the programmes recorded on video-cassettes and the related "courseware" through wide-ranging distribution to other educational institutions, learning resource centres and other broadcasters. Production costs for original programme materials are very high, but are often justified by subsequent volume of use. In terms of overall cost effectiveness, it may be difficult to determine whether the educational value of the television programmes is always worth the additional costs. Wilfrid Laurier University and Huntington College, Laurentian University, produce their own television material, and then must pay for access to private distribution systems. The University of Victoria also produces telecourses for distribution on the Knowledge Network of the West.

The availability of existing materials becomes an important factor in determining the feasibility of using a television component in a multi-media course. This is referred to as a "wrap-around" package. Utilizing these resources and organisation and administration, particularly if original production are undertaken, can be complex, challenging and costly.

Because of the vast expanse of the Canadian geography, it is both impractical and expensive to distribute television signals via cable television which, by definition, will never reach the myriads of small communities scattered throughout the country especially in the North which comprises 80% of the land mass. However mainly through the initiative of local residents small communities, even small hamlets, have developed home-spun cable systems and are linked to the outside world via satellites from which they draw signals through medium priced parabolic "dishes".

Despite its geography, Canada enjoys one of the highest levels of homes linked by cable in the industrialised world. Satellites do offer the technical possibility of reaching upwards of 80% of the population through

a vast network of cable companies ranging from the very large metropolitan distributors to the minute systems operating more or less on the margin of the law in small remote hamlets.

Widespread availability of home video recorders with timers and retail outlets for video-cassettes has recently added another dimension to the established patterns and creates new opportunities for direct distributions of video-cassettes to students, as well as enabling them to copy and store broadcast programmes. Unfortunately, incompatible cassette formats continue to complicate this medium, with both Beta and VHS systems in use.

The most positive note in this area is that the cost of both the playback units and the tapes have continuously dropped over the last several years and appear to be continuing in that trend. This means that in the very near future the video-playback unit will have become a common feature of the average Canadian home.

iv) Radio

Next to print, broadcast radio is the most generally accessible technology, and it has been used in education for many decades at all levels from provision of basic pre-literacy education in developing countries to university credit courses. As in the case of television programmes, materials can be distributed for re-use in print and audio cassette formats. While for some applications radio has yielded ground to television, it remains a potent resource, and in one sense it remains a unique mode of communication, since aside from the broadcast form, it also encompasses various interactive modes made possible by the availability of cheap and readily available transmitter receivers for individual use in the "ham" and CB frequencies. Some activity in these "bands" resembles teleconferencing without the switching and bridging components, as people in different parts of a city or continent discuss matters of common concern, regulating their participation by voluntarily-accepted protocols. Radio is not heavily used in Canada, partially because in metropolitan areas there are so many signals within small areas, while in rural areas only the CBC cover the country. In the past "Farm Forum" provided informal educational opportunities for farmers to discuss specific areas of interest. Currently, Open College Ryerson offers programmes by radio and Athabasca University uses radio.

v) Video-Disc

As in many other innovative technologies, widespread commercial distribution and hence general availability of reliable, low cost reproduction equipment has been delayed by lack of a standardised format for full size video-discs, although its audio counterpart, the compact disc had quickly overcome these difficulties and is now reasonably well established as an attractive alternative to audio-cassette tapes and conventional records. Educational applications of the video-disc have so far exploited its ease of indexing and quick retrieval of selected content through rapid controlled movement of the laser "pick-up", rather than its impressive potential for permanent information storage and economical mass production. Production costs for the small quantities currently used in educational applications, such as Computer Assisted Learning (CAL) systems,

remain relatively high and are likely to remain so until a mass-market format is standardised. Among the competing formats are a few which may permit low cost duplication of "direct-to-disc" recording. Recently announced technical innovations may threaten the development of this technology.

vi) Computers

While the development of programmes for educational purposes remains relatively costly, authoring software now exists to facilitate the process of computer/student interaction which is seen to be essentially an individualised diagnostic remedial process. The proliferation and gradual standardisation of home computers creates wider opportunities for distance education applications. Computer users already have access via telephone lines to a wide range of data banks, information services and electronic "mail", "bulletin boards", etc and such services can readily be developed or adapted to educational uses. Several software manufacturers are seeking educational partners for the development of courseware, but there remains much room for progress in this area in Canada.

vii) Teletext-Videotext-Telidon

Various systems have been developed to use telephone transmission lines or small bands of radio-frequencies to transmit text and in some cases simple colour graphics using computers for preparing, storing, coding and decoding text pages or lines of text and displaying them on video monitors or printers. Some of these can be multiplexed, i.e. transmitted simultaneously with other information on a single transmission. Thus they are usually employed in combination with other systems in such applications as teleconferencing and computer-assisted learning. Variations have been proposed for a variety of information retrieval and marketing functions in conjunction with home telephones and broadcast or cable TV, and if these are widely adopted, educational applications will doubtless follow. Only experimental applications to education has so far seen the light in this area in the Canadian post-secondary sector. The Telidon experiment, supported by the Federal Government, appears to have been a failure, as no economical applications could be found. Recently "Grassroots", the Agricultural Telidon Network, was shut down.

Academic Level

Even though the vast majority of courses and programmes which are currently offered by Canadian universities are at the baccalaureate (or first degree) level, some are offered at the Master's Level. There are even advanced short courses in such specialised fields as Pediatrics, or engineering which are not being offered on an international basis by Canadian institutions. (University of Ottawa - Jamaica) (Hydro - Quebec - Columbia).

As far as the colleges of applied arts and technology are concerned they offer both courses of general interest as well as courses leading to a certificate or diploma, in programmes in applied health sciences, gerontology and business, to name only a few.

Type of Education

Although the majority of courses offered by Canadian institutions are in the areas of social sciences and humanities, there are a number of science courses which have been offered by some institutions such as the University of Waterloo.

The main difficulty yet to be overcome in teaching hard science courses at a distance is the whole section of the course related to laboratory work. Computer technology has made possible the creation of what has been called "dry lab conditions", but this has not replaced the hands-on dimension of a science course which is deemed essential by most faculty.

A concentrated, on-site (campus) summer session of laboratory work is seen by some as satisfactory solution to the problem. It is fair to say, however, that many science faculties still hold to the belief that the laboratory session must immediately follow the theoretical exposition of the material.

Home "kits" have managed to provide inroads into satisfying some of these pedagogical concerns but this is certainly an area where many difficulties still exist and where consensus is still far from being achieved.

Colleges have offered a number of technical courses at a distance with remarkable degrees of success. Confederation College has provided leadership in this area. Experimentation is continuously going on in order to adapt more courses to the distance education mode of delivery.

Costs

This is a topic which cannot be easily addressed. The range of projects and their related costs can go from fully equipping a broadcast television station with a transmitter (EST 1.5 million dollars) to producing a print based course which can cost approximately \$5,000.

Following are cost samples:

- salary costs for the TV station could run as high as \$250,000 a year including a chief engineer. In addition, one would have to add space rental, maintenance, insurance, up-keep, etc, to these figures.
- in Canada today a satellite dish to receive existing signals costs between \$3,000 and \$5,000.
- a teleconferencing bridge costs approximately \$60,000 depending on the options. This "bridge" allows up to 20 centres to be linked concurrently or to have four courses, each offered in five centre concurrently.
- convenors (for teleconferencing sites) cost approximately \$1,500 per site (four microphones).
- an electronic blackboard which allows direct transmission of material

from the host site to the participating site costs approximately \$20,000, while on-site monitors cost approximately \$800/site. This device, which is pressure sensitive, resembles a regular blackboard. The signal is sent over telephone lines in conjunction with the convenor unit.

- telephone line costs are directly related to distance, length of time used and hours of day used (different rates often apply to different parts of 24-hour day).
- video-playback units with monitors can be obtained for \$500 to \$1,000.
- microcomputers are now available on the Canadian market for as low as \$1,000 for small basic units to as high as \$8,000 - \$10,000 for more sophisticated machinery. A \$2,500 to \$5,000 range provides a user with a fair choice of models with various capacities.
- the production of a television based course will cost anywhere from \$25,000 to \$250,000 with an average institutional cost of around \$100,000 to \$150,000. Some sophisticated productions made by some major institutions have exceeded \$1,000,000. This translates into costs of between \$20,000 to in excess of \$100,000 per hour of programming, depending on the level of sophistication.

Constitutional Patterns of Institutions

It would be fair to state that the prevalent pattern in Canada is that of the "dual-mode" institution, that is a regular campus-based university with a distance education component. In these universities or colleges, the distance education programme is usually housed with the Continuing Education Centre.

There are however some notable exceptions such as:

1. La Télé-Université of the Université du Québec

La Télé-Université of the Université du Québec is the "distance education" component of the Université du Québec's multi campus system. It has had, however, some difficulty within its own university context to establish itself as an "equal" amongst the other components.

2. Athabasca University

Athabasca University was established in 1970 as an undergraduate degree granting institution to remove barriers that traditionally restricted access to and success in university-level studies. Another aspect of its educational mission was to increase equality of educational opportunities for all adult Canadians, regardless of their geographic locations.

Athabasca University was explicitly established as an institution which has no on-campus students. The home-based learning opportunities provided for individual study are supplemented by a variety of group interaction techniques including teleconferencing to include dispersed learners. Athabasca is Canada's only "open university".

3. The Open Learning Institute

Established by the British Columbia government in 1978 to offer a first degree as well as career, technical and vocational studies, OLI only occasionally uses distance education methods solely. Courses and programmes are offered at various educational levels, utilising various technologies with an emphasis on print.

4. The Knowledge Network (KNOW)

Created in 1980, again in British Columbia, KNOW, serves as an electronic classroom for the province. Its 98 hours a week of broadcast are received by over 250 communities through Canada's Anik C-3 satellite. Not only is its signal beamed in BC but it also reaches the Yukon, the Northwest Territories and Alberta. It is not a teaching institute but a carrier of courses for the Open University Consortium of BC.

5. The Open University Consortium (British Columbia)

While the consortium does not itself grant degrees, it has expanded the range of degree options within the existing university system of BC by modifying the Open Learning Institute's university degree to include extended transfer credit allowance from other institutions.

Over the past summer, all three British Columbia institutions were brought under one umbrella organisation called the **British Columbia Open Learning Authority**.

Registrations

No statistics are available which show the magnitude of distance education in Canada, either by itself or in comparison with in-person teaching. However, some figures are available which may be useful:

- the University of Waterloo registers 16,000 distance education students yearly, in over 300 courses.
- Laurentian University registers over 1,000 students in each of three terms every year, in 50 + courses compared to 1,500 to 2,000 students in person.
- Athabasca University registers 10,335 part-time and 178 full-time students, all at a distance.
- Memorial University of Newfoundland registers 2,100 distance education students and 5,400 in person part-time students.
- The Open Learning Institute registers 17,776 students of which 6,136 are in university programmes.
- Mount St. Vincent University in Halifax registers 296 students via distance education and 1463 in person.

There are no current statistics available in Canada comparing the cost per student in distance delivery as opposed to on-campus. Athabasca has done most of the work on costing and in 1979-80 the estimated cost per course enrolment there was \$1,073.

Analysis

All efforts made by Canadian post-secondary institutions to offer programmes by distance education, whatever combination of media are employed, allow accessibility to an ever increasing number of Canadians wanting university and/or college education. Progress is being made, but much more remains to be done to meet the post-secondary educational needs of Canadians. The demographic distribution of the Canadian population is becoming considerably less an inhibiting factor because of advanced technology in the field of telecommunications. However, the current range of programmes available through distance education is still very limited and many needs are not currently being met.

A recent development with regards to the Francophone population augurs well for much progress in this area. On October 20, 1986, the basis was laid for the creation of a loosely knit consortium composed of Francophone and bilingual institutions from across the country to share human resources as well as course software. A new non-profit corporation called CANAL with its base in Montreal at the Télé-Université has negotiated an agreement with the Canadian Broadcasting Corporation which will give it access to 10 hours a week (one and a half hours per morning) on the pan-Canadian House of Commons Television Channel. Through the use of this communication mode, any Francophone or bilingual institution will have the opportunity to offer courses to the widely spread French-speaking Canadian population, coast to coast. This is undoubtedly a significant development in the area of meeting the needs of the Canadian Francophone population. Programming on the House of Commons Television Channel is scheduled to start in January of 1987.

Some post-secondary institutions have made limited efforts to offer programmes aimed specifically at the native population. Further development of telecommunication delivery networks will enhance the accessibility of these programmes. However, this is an area where much remains to be done and where many problems exist, mainly resulting from socio-cultural variations.

As referred to in part 1, the economic stringencies under which most if not all Canadian institutions have been forced to operate since the late seventies have tended to weaken the isolation in which they had hitherto developed and have encouraged a greater level of cooperation. Not only do we see very heartening progress within provinces but also across provincial boundaries. We believe this sense of unity will continue as various institutions build a growing number of successful cooperative projects.

Finally as more and more people become familiar with studying at a distance, the whole concept of distance or open learning is gaining both credibility and acceptance. It is becoming more difficult for institutions not to respond positively to demands of people who have completed part or all of their studies via the distance education mode.

Possibilities for the Future

Since distance education viewed from a country wide perspective is still very much in an early stage of development, the needs to be met are much larger than those already met. The task of identifying and listing these needs has barely begun. However, some definite areas of development include professional training and upgrading (nurses, social workers, engineers, accountants, lawyers, medical doctors, agronomists, managers, teachers, etc). In Ontario, the various associations of registered nurses have proposed that the BScN degree should be entry to practice by the year 2000, thereby effectively moving entrance qualifications from the provincial community college sector to the universities. Although the government has yet to approve this move, many nurses have already begun to pressure universities to open access to existing post-basic programmes. As most of these nurses are currently working full-time, their interest is in an open learning format, which will allow them to continue working as they study.

In British Columbia, Alberta and Ontario development is underway for full degree programmes in nursing. In Ontario, Laurentian University recently announced the January 1987 launch of a distance education Post-RN degree, with a projected Northern Ontario registration of 150 nurses. Three hundred (300) are registered. Efforts are underway to work collaboratively with Lakehead University on the programme. At the same time, the University of Ottawa has been offering certain courses for nurses by teleconferencing.

In a similar area, increasing pressure is developing in the social work profession for constant upgrading, both in formal credentials (mainly masters level) and informal. Again, these professionals are unable to leave their jobs despite their awareness of their need for upgrading.

In Canada, there is growing concern about the quality of science education being provided to primary and secondary students. A national movement to increase scientific literacy has not yet begun but we see this area as increasingly important. Again, distance delivery would be the most appropriate to allow access and ensure quality control.

In other health care fields, networks are growing by providing professional upgrading to physicians, applied health practitioner, ambulance workers and paramedics. Telemedicine for Ontario began several years ago as an initiative of the Ontario Ministry of Health and the Royal College of Physicians and Surgeons. Linked to the province's five university medical schools, it provides a teleconference network for professional development. A similar organisation was also established in the North. Teleconferencing allows experts from around the world to participate and share their expertise. International development work has been underway but collaboration on a more comprehensive and systematic basis would allow for large expansion.

Within the community colleges, development potential is seen for computer training programmes covering the spectrum from literacy to software development. As with the universities, the colleges are seeking closer linkages to industry, particularly in high technology areas. Distance

learning packages would enhance these connections by encouraging collaborative development.

For Canada, basic Baccalaureate programmes for the Francophone population have yet to be fully developed and made available in most areas of the country. The recent development referred to in the Analysis (2 (C)) give hope that an early resolution of that problem will be possible. The newly formed consortium offers the best hope of success in that area. This market also displays a great need for basic literacy programmes.

The attention given so far to the native population has been grossly inadequate and this issue as a whole has yet to be faced in a systematic manner. Some examples of potential programme development here include a native social work undergraduate degree and management and economic development for Natives.

However, several ventures augur well for the future:

- the Francophone Consortium - Since it is only in the early stages of formation, it is too early to describe it. The only thing that is certain is the interest manifested by senior administrators of those institutions to cooperate with each other and to set out to do so immediately.
- the Trans-Canada Television Network of the House of Commons TV Channel which has been made available to educational institutions offers for the first time in the history of education in this country a vehicle with the potential to reach people from one end of the country to the other.
- the recent developments in British Columbia could offer the rest of the country a model for inter-institutional collaboration and could eventually be linked via satellites or telephone lines with other provincial networks that could emerge.
- the recently created Distance Education Research Institute at Athabasca University should provide the rest of the country with a growing base of scientifically assessed educational experiments and practices which should favour the development of more suitable and adaptable means of distance education.
- the Northern Ontario Distance Education Network which is in the process of being launched with a commitment by the government of that province to fund the project at the rate of five million dollars a year for four years should have significant impact on the very scattered population of that area of the country and should provide a unique test-bed for new technologies.
- the growing network of hospitals linked with University Teaching Hospitals in the south will provide an increasing set of possibilities for the upgrading of medical practitioners throughout that part of the country. Experiments have been conducted with areas as far as British Columbia with the Telemedicine for Ontario Project with apparently satisfying results.

- CADE's (Canadian Association for Distance Education) creation of a research and development committee for the training of practitioners should have a very positive effect on the attitudes of an increasing number of academics who, to date, have been reluctant to engage in distance education projects.
- in Ontario, five universities are jointly cooperating with TVOntario for the development of a telecourse on the Sociology of the Family. An introduction to Sociology has already been produced. The success of these projects should lead to further progress of such inter-institutional endeavours.

CO-OPERATION IN DISTANCE/OPEN EDUCATION IN CANADA

Experience of Co-operation

There is general agreement amongst people involved that there is a free flow of information with regard to all aspects of distance education in Canada. The willingness to share experience on an informal basis is a feature of the Canadian scene.

Also formal organisations such as CADE (The Canadian Association for Distance Education) provide structured forums for the exchange of ideas, analysis of projects and general education about technologies used in distance education.

The Canadian Association of University Continuing Education has been for years a leader in providing opportunities to share ideas and experiences. In fact, this organisation gave birth to CADE and still produces the country's only inventory of university distance education programmes.

Regional organisations like the Ontario Council for University Continuing Education have not only acted as a forum for the exchange of ideas but have often taken active steps in promoting distance education. Many of its members are sitting on advisory committees to TVOntario as well as participating actively in the standing committee on distance education of the Council of Ontario Universities, created in 1983.

A Western group, which combines the Universities of British Columbia, Alberta, Saskatchewan and Manitoba, also plays a similar role. As well, the Atlantic Provinces Association for Continuing University Education performs a similar task in the Eastern part of the country.

For over ten years some Canadian universities have used course software developed by sister institutions as part of their own programme offerings:

- Laurentian University in Sudbury leased courses from the Télé-Université in Quebec, Athabasca University in Alberta and Wilfrid Laurier University in Ontario.
- courses developed by Laurentian University have been used by the University of Ottawa, Wilfrid Laurier, and Athabasca.

- Cambrian and Northern Colleges utilise distance education courses for the training of ambulance para-professionals developed by Confederation College.

There is a much greater willingness amongst the administrators of distance education programmes of Canadian universities to exchange material than there is amongst faculties of universities to do so. The major problem to date has been reluctance to accept some else's course because the "slant" or emphasis does not correspond exactly with one's own. This type of academic chauvinism has been deemed to be the greatest single negative factor in the slow progress towards greater rationalisation of academic resources.

Joint productions of courses with four or five universities working with a broadcasting institution like TVOntario seem very promising for the future in alleviating the "not made here" syndrome.

In the community colleges, some exchange of materials has occurred. Confederation College in Thunder Bay, Ontario, has produced over 40 individual distance education courses which it allows other colleges to use, at cost.

To sum up, there has been some exchange of material but not as much as there should be.

On a formal basis there is very little evidence of co-operative training activities in Canada. Individual instances such as the University of Ottawa's open door policy to anyone who wants to spend a day or two studying their network of teleconferencing and electronic blackboard are more the exception than the rule.

Most of the "training" happens in the various forums described in part (a) of this section "Information exchange". Both CADE and CAUCE provide various professional development opportunities to their members and the Northern Initiative in Ontario includes substantial professional development and research programmes.

Our analysis has shown that very little, if any, formal personnel exchange programme exist in this country.

Course and programme co-production have not occurred regularly. However, there have been a number of such experiences in the past and at least two courses in Sociology are currently being developed in Ontario with five universities and TVOntario working as a production consortium. Currently, Laurentian University and Lakehead University are co-operatively creating courses for a Post-RN BScN degree to be launched in January, 1987 and all programmes developed as part of the Northern Ontario Initiative must be done collaboratively.

Examples of Co-operation

Some recent examples of Canadian universities co-operating outside Canada include:

- the University of Ottawa Medical School Children's Hospital has established audio-links combined with slow-scan visual capabilities with the Bustamante Children's Hospital in Jamaica. This allows sharing of most recent discoveries and techniques of treating children as well as general communication between the pediatric staffs of both institutions.
- Jamaica in turn is part of the distance education network of the University of West Indies which links a number of countries such as Trinidad and Tobago.
- through the facilitating endeavours of CANAL the engineers of Hydro-Quebec will be offering upgrading technical courses to the engineers of the Hydro Authority of Colombia, South America. This will be accomplished via satellite with interactive video and audio links. In addition, the courses will be simultaneously translated from the Montreal end of the link.
- a third example of a slightly different type is the University of Ottawa's project to send the director of their distance education programme to Uganda to set up a pilot project of teleconferencing through a 20-site network.
- experimental projects, again through the initiative of CANAL, have been conducted linking Montreal, Shanghai and Peking via satellites. The two 2-hour long audio and visual interactive links both proved to be very successful. Again, through CANAL an agreement was signed on October 22, 1986, in Miami between the Télé-Université du Québec, Global Development Network and Miami Children's Hospital. These will be linked with Costa Rica, Argentina, parts of the US and Canada. It concerns a project to develop a communications model of programming exchanges on organisation and production of medical, agricultural (nutrition and food) and public administration.
- Laurentian University in Sudbury is currently exploring using the MBA material developed and used by Deakin University, in Australia.

Some examples of co-operation across regions of the country can be seen in the University of Ottawa's offering of a course in a nursing programme for students registered at the Université de Moncton in New Brunswick but who were living in scattered communities of that province. It permitted those students to complete their degree in Nursing. Another example would be the course in the use of computers offered by the University of Ottawa to students (mainly teachers) in both New Brunswick and Nova Scotia.

Again from the University of Ottawa, courses were offered to students registered at the Faculté St. Jean in Edmonton, Alberta but living in some 16 communities in that province.

The new network linking Francophone institutions across the country will in all likelihood develop into a multi-lateral complex of inter co-operation where courses originating anywhere in the network will be made available to the students anywhere in the country. In short, it will give access to

French Canadians to the whole range of courses and programmes which will emanate from Canadian Francophone and bilingual institutions.

The consensus that seems to emerge from those involved in co-operative endeavours is that wherever and whenever co-operation did take place the level of satisfaction was fair to high. However, there is also a consensus that not enough is taking place and that many institutional barriers must be brought down.

"The time is here" mood seems to summarise best the attitude gleaned from across the country. There is a very positive attitude toward new co-operation initiatives which characterises those involved in distance education, even though most expressed varying degrees of frustration at the slow rate of progress.

The emerging Francophone consortium offers the most exciting prospect for rapid expansion in an area which had up to now been badly neglected.

Finally, the bold experiments of the University of Ottawa and those orchestrated by CANAL on the international scene would seem to indicate that the possibilities for new initiatives are just beginning to be explored and the only limits to be set are those of the imagination and creativity of the Canadian post-secondary institutions.

PAPER 5

DISTANCE EDUCATION IN THE CARIBBEAN

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CHAPTER FIVE

1.0 INTRODUCTION AND BACKGROUND

The English-speaking Caribbean extends from Belize on the Central American mainland, across to Jamaica and the Bahamas Islands, then through the chain of islands which delineates the Caribbean Sea from the Atlantic Ocean - from the British Virgin Islands at the northern tip of the chain, to Barbados in the south east, on to Trinidad and Tobago just off the Venezuelan coast - and further south to Guyana on the mainland of South America.

The island countries are small and many of them are densely populated although the absolute sizes of the populations are small. The mainland territories have relatively small populations and have to contend with large separation between rural and urban populations. Some indicators are given in Table 1. The total population of the region is only about 5.6 million.

Table 1. Some Country Indicators for the English Speaking Caribbean.

Country	Area (Sq.Mls.)	1982 Population (Thousands)	1982 Per Capita Income (US\$)
Anguilla	35	7	800
Antigua/Barbuda	171	77	1,520
Bahamas	5,380	219	4,200
Barbados	166	250	3,780
Belize	8,867	152	1,740
B.Virgin Islands	59	12	3,700
Cayman Islands	100	18	9,400
Dominica	290	74	850
Grenada	133	106	890
Guyana	83,000	920	428
Jamaica	4,411	2,228	1,160
Montserrat	39	12	2,400
St.Kitts/Nevis	103	45	1,200
St.Lucia	238	124	1,020
St.Vincent	150	100	740
Trinidad/Tobago	1,980	1,200	5,200
Turks/Caicos Islands	166	8	2,000

There are substantial distances between some of the countries: Nassau, Bahamas, is 950 miles from Belize City, Belize, and some 1,800 miles from Port of Spain, Trinidad. Transportation between the countries is reasonably good but can be time consuming, even by

air. A trip from Kingston, Jamaica, to Port of Spain, Trinidad, from the time of check in for departure to completion of customs formalities on arrival, will often take as long as seven hours and there are no direct flights connecting any of the countries with Belize or the Bahamas.

2.0 CARIBBEAN EDUCATIONAL SYSTEMS

The Commonwealth Caribbean possesses an almost unique educational homogeneity compared with other regions. The territories make use of similar systems of teaching, similar curricula, a common examination system involving the same methods of assessment, and prepare students for entry to the same University.

The Educational Objectives of the Caribbean Governments

The Governments of the Region share many educational objectives and programme directions aimed at improving the quality of education and expanding the school populations. These include the development of curricula and educational materials and upgrading the skills of teachers, management and supervisory staff. Education of the handicapped is also receiving attention. Each territory will, of course, have its own particular needs but some territories suffer very much from a shortage and rapid turnover of staff. At the tertiary level there is also the problem that in several countries, although the needs may be urgent, the absolute size of each requirement is quite small so it is economically difficult to fill by local training. There is the further difficulty of the isolation of the professional which is being increasingly recognised as a real contributor to the brain drain. The large measure of common ground, standards and objectives suggest the likelihood of an aggregation of efforts in education and training with the aim of providing improved services at affordable costs.

The Present Status

The educational system in each territory is administered by a Minister who is responsible for an overall development and operations. The Governments all provide, at least to some extent, pre-school, primary, secondary, special and post-secondary level education, including vocational and teacher training programmes.

Children in the Commonwealth Caribbean enter the formal education system at about six years of age. After five years at the primary level there is an examination, known as the eleven plus or common entrance, which is the sieve for selection to the "academic" stream of the secondary level. Another five years brings the student to the Ordinary level examinations of the Universities of Cambridge, London or, more recently, the examinations of the Caribbean Examinations Council. These are school leaving examinations for most of the students who then seek employment, entry to the tertiary system, or specialised training.

There is no easy measure of performance of an educational system. Certainly a considerable number of Caribbean students perform excellently by any standards, and the intake into the university, although this already selects from those who have been successful in the school system, perform reasonably well. But it is commonly held that much is wrong with the Caribbean educational system. Students, parents, teachers and governments complain, often along the lines of the following quotations extracted from a recent manpower study on the Eastern Caribbean states:

- ".. the existing institutions for providing trained teachers and agriculturists are incapable of meeting the national needs. This condition is unlikely to be changed radically in any of the states examined in the near future."

- ".. There is a crippling lack of persons with degrees in Agriculture. Since 1968 for example, there have been no new B.Sc. graduates ... The extension arm is especially weak - most of the extension officers having experience in sugar technology only."

- ".. There is only one Geography teacher among six secondary schools; and someone from India was hired to teach English."

- ".. In many instances subjects are being taught (in secondary schools) by GCE "O" level graduates."

- ".. 81.6 percent of those who sat the "O" level examinations (in 1976) gained 0-3 passes only."

- ".. subjects such as Biology, Chemistry, Physics and French are often not taught for lack of tutors.."

Some of the solutions are obvious: increased numbers of teachers in training, better salaries, and higher capital and recurrent funding; but most of the region cannot find the funds to put these into effect. It appears, therefore, that advances will have to include new tactics. The University of the West Indies is pursuing one such.

The University of the West Indies

The University of the West Indies (UWI) is one of only two surviving regional Universities; the other is the University of the South Pacific. UWI has eight faculties: Agriculture, Arts and General Studies, Education, Engineering Law, Natural Sciences, Medical Sciences, and Social Sciences. There is some duplication of faculties across the campuses but Agriculture and Engineering are exclusively in Trinidad and the second and third years of the three year undergraduate law degree are in Barbados. The first year of law is

taught on all campuses and also at the University of Guyana. The Medical School is primarily in Jamaica but clinical training is also done in Barbados and in Trinidad, and a new medical school is being developed in Trinidad.

Undergraduate Programmes

The undergraduate programmes at UWI in general require three years of study after the normal 'A' level matriculation although some faculties offer a fourth, preliminary, year. Medicine is a five year programme followed by two years of internship.

Postgraduate Programmes

All the faculties prepare students for higher degrees including doctorates. Most post-graduate students are from the region but some faculties attract students from many other countries.

Extra Mural Centres

The Extra Mural Centres are the focal points for the University in the non-campus countries. The Centres are managed by Resident Tutors, whose responsibilities include the development and maintenance of educational programmes appropriate to the needs of each particular country, especially in adult education. They provide liaison and feedback between the University, Governments, and the respective communities. These centres are of course a major resource for distance teaching.

The growth of student numbers is shown in Table 2.

Table 2. Student Numbers at UWI

Year	Men	Women	Total
1948/49	23	10	33
1951/52	152	53	205
1954/55	275	109	384
1957/58	354	201	555
1960/61	657	320	977
1963/64	1,465	722	2,187
1966/67	2,047	1,212	3,259
1969/70	2,914	1,713	4,627
1972/73	3,739	2,587	6,326
1975/76	3,994	3,263	7,257
1978/79	4,477	4,042	8,519
1979/80	4,762	4,224	8,986
1980/81	4,684	4,374	9,058
1981/82	4,830	4,713	9,543
1982/83	4,704	4,869	9,573
1983/84	4,844	5,182	10,026
1984/85	5,007	5,565	10,572

The breakdown by campus for 1984/85 was Mona - 5188; St. Augustine - 3197; Cave Hill - 1641.

UWI is being asked to cope with a great many new demands now and in the years ahead. Because the level of funding under which the University is operating does not take all these into account, the demands being made on its staff and systems will be multiplied enormously. It may well be that telecommunications will help to extend the current resources and make the tasks easier.

3.0 DISTANCE EDUCATION IN THE CARIBBEAN

Until after the end of World War 2 education in the Caribbean was very much for the privileged and those who were brilliant and fortunate enough to win one of the relatively small number of scholarships to secondary school, the rare scholarship for study abroad, or those who took the then bold step to work and study in the United States.

This system may have met the needs of the times because most of the relatively few well trained in whatever field were imported and dependence on Britain was pretty much complete. But nevertheless there was a number of persons who pursued higher education by means of various correspondence courses, originating from Britain, and received qualifications in the Arts, Accounting, and Law for example. Indeed some of the famous names in the region received training in this manner but the rarity of success must attest to the difficulties which they faced.

The changed political scene consequent on the independence of most of the Caribbean countries and the general acceptance of the value of an educated population ensures that education is now regarded as a "right". Increasingly it is understood that the region requires relatively large numbers of well-trained people in its work force which comprises less than 1% of graduates. Not only the young but many persons who missed opportunity earlier and those who require continuing education form a pool which represents a very significant demand. But in the face of great need funds are scarce and since traditional education grows ever more expensive distance teaching has become a possible alternative worth the closest examination.

Educational broadcasting has been one approach. Radio and television have both been employed with some success particularly for the teaching of literacy but it seems fair to say that neither has so far been incorporated properly into the mainstream of the educational systems. On the other hand the University of the West Indies has initiated an interactive distance teaching network which serves mainly the tertiary and professional levels.

UWI's Involvement in Teleconferencing

UWI began experimenting with telecommunications in 1978 as one possible way of meeting the region's pressing demands for education. During the period up to December 1985 the main support funding and technical assistance was provided by the Science and Technology Bureau of AID Washington.

Project Satellite

The introduction was Project Satellite, an experiment in 1978 which lasted for two months. It linked the Mona and Cave Hill campuses via two NASA satellites in the Applications Technology Series: ATS-6 for outgoing full motion video from Jamaica and ATS-3 for return audio. The Extra Mural Centre in St. Lucia joined in for the final two weeks, during which two major seminars centered in St. Lucia were shared with the other sites.

The programmes included discussions on rural medical care, agricultural research, the nurse practitioner programme, family-life education in schools, the education of the deaf, early childhood education, and University administration. An audio conference was held to demonstrate teleconferencing over extremely large distances: the Mona and Cave Hill campuses held exchanges with PEACESAT sites in Suva, Fiji; Niue, Rarotonga, Cook Islands; Honolulu, Hawaii; Tarawa, Kiribati, Wellington, New Zealand and Santa Cruz, California. The link between the ATS-1 satellite used across the Pacific and ATS-3 used by UWI was via Denver, Colorado.

This experiment and the project report were well received and led to support from USAID to carry out the Caribbean Regional Communications Study.

Caribbean Regional Communications Study (CARCOST)

This was a feasibility study to determine whether, and how, interactive distance teaching and teleconferencing could contribute to education and public service in the Caribbean.

CARCOST allowed UWI staff to visit several distance teaching projects and to carry out studies on selected Caribbean problems and possible applications to them of some of the communications technologies. Demonstrations and some distance teaching experiments were performed. The report concluded that in the Caribbean states it hardly seemed possible, if limited to "conventional methods", to expect real advances in many of the problem areas in the near future. This conclusion was based on:

- (1) the small scale of even urgent needs in countries of small populations;
- (2) the isolation of the countries;

- (3) shortages of trained personnel and the severe lack of funds for present needs, let alone future development.

The report suggested that the appropriate use of telecommunications, coupled with the willingness of the countries to share so that needs could be aggregated and met in a more economical manner, might be a way forward. The draft report was discussed with Ministers of Education and their nominees and received their full support.

The major recommendation of the CARCOST report was for a five year pilot with particular emphasis on the teaching of the first year of the B.Sc.(Social Sciences); In-Service Teacher Training; Health and Agricultural Applications; and University Administration.

That report emphasised that the successful use of teleconferencing techniques for educational purposes in the Caribbean must depend heavily on the simultaneous development of other aspects of educational technology, i.e. the use of print, audio-visual and other media, which would, hopefully, also help to enhance the usual teaching in the University and in other institutions in the region. The report very much favoured an interactive rather than a broadcast system because of the clearly expressed wish of potential participants, particularly in the more isolated populations, to communicate in real time; this would be necessary for medical consultations.

The recommendations of the CARCOST report were fully accepted in principle and led to the University of the West Indies Distance Teaching Experiment.

4.0 UNIVERSITY OF THE WEST INDIES DISTANCE TEACHING EXPERIMENT (UWIDITE)

UWI was anxious to have a satellite based system with small ground terminals covering the fourteen contributing territories but this was not possible so the number of countries had to be limited and the regional telephone service to be used.

An agreement for the support of a three year long project was signed with AID in May 1982. AID provided a grant of US\$600,000 over a three year period for salaries and other support. Furthermore, AID provided the audio equipment for five teleconferencing rooms; about US\$220,000 for the communication costs; and funds for technical assistance and training. The CARCOST report provided the planning blueprint which, indeed, has been adhered to remarkably closely.

Other organizations have contributed to the purchase of equipment or the funding of particular programmes. These include the European Development Fund which provided funds for telewriters, Johns Hopkins Programme for International Education in Gynaecology and Obstetrics (JHPIEGO) for continuing medical education programmes

in reproductive health for doctors and senior nurses; the Commonwealth Foundation to support a programme for training secondary school technicians; and of course, the University of the West Indies. The Governments of St. Lucia and Dominica have also contributed.

The network was activated on March 7, 1983 too late for meaningful academic work during the 1982/1983 year. Nevertheless, some useful work was done and a great deal of staff had the opportunity for training.

The project was implemented by the UWI and AID through its prime contractor, the Washington based Academy for Educational Development (AED). The Academy undertook responsibility for planning, procurement of equipment, installation, some training of personnel, and the provision of technical assistance.

The Organisation of UWIDITE

A Project Office was established within the office of Pro-Vice-Chancellor G.C. Lalor, who is Project Director. The activities at both the Cave Hill and St. Augustine campuses are coordinated by Pro-Vice-Chancellor Rudolph Goodridge (who took over from Pro-Vice-Chancellor Keith Hunte), and Pro-Vice Chancellor Max Richards, respectively. This includes liaison between the Project Office and the campus, local government, telecommunications authorities, and, of course, the campus community. The Resident Tutors are responsible for the sites in the non-campus countries.

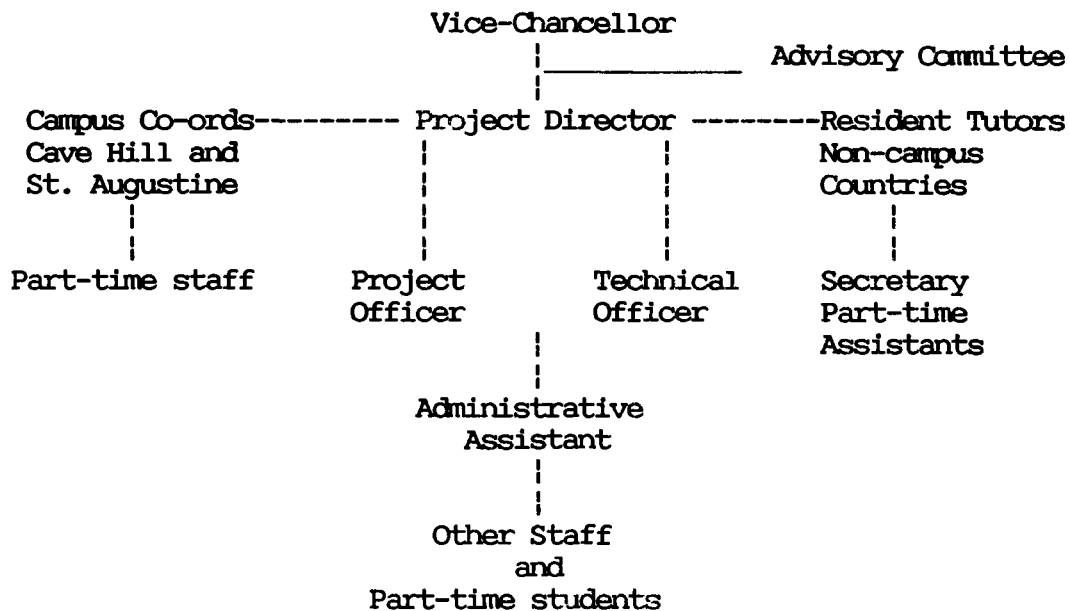
Advisory Committee

The Vice-Chancellor appointed an Advisory Committee to:

- * advise on distance teaching policy;
- * contribute to the evaluation and planning for subsequent operational services;
- * serve as a conduit for information and feedback between the University and the project.

Organisational Structure

The organisational structure is shown below:



Description of the System

Because it was not possible to obtain a fully satellite based system the network makes use of the normal commercial telecommunications facilities. One result is that there are as many as eight independent companies involved. This large number of carriers makes for an element of confusion. In hindsight it would have been much simpler to have worked more closely in the design and operational development of the system with at least one of the carriers, say Cable & Wireless. This would probably also have encouraged more interest and participation on their part.

The network is a dedicated four-wire telephone link of bandwidth 300 Hz to 3000 Hz. This differs from usual two-wire telephone circuits in that a separate pair of wires is used for incoming and transmitted signals. It also costs more but the potential quality is very much higher since crosstalk is reduced and it is possible to disconnect the transmit signal from a site which has become noisy thus converting it to receive only.

The operation is as follows: from, for example, the Mona campus the signal travels by a four-wire telephone line and by microwave circuit to the international gateway. It is relayed via an INTELSAT satellite, to the corresponding ground station in Trinidad and, by a microwave link, to St. Lucia which is the hub of the system. From there it goes out to Dominica, Antigua, and Trinidad by microwave circuits and to Barbados by tropospheric scatter. The final link to all the University sites is by four-wire telephone lines.

Teleconference Rooms and Equipment

Each teleconferencing room is equipped with at least six microphones, two loud-speakers, slow-scan television (SSTV) equipment, and a telewriter for on-line use. For off-line use, each centre is provided with video cassette playback facilities.

Audio Equipment

The audio equipment consists of:

1. Telephone termination equipment
2. Teleconferencing equipment
3. Telephone handset.

Video Equipment

Initially there were no plans for visuals but an insistent demand for some sort of visuals built up very quickly. This led to the installation of slow scan television, video cassette recording and playback facilities, and telewriters.

Computers

IBM PCs are attached via modems to the system. These are used for data and document transfer.

X-Ray Film Viewer

This was found useful to allow the exchange of information on x-ray images by medical practitioner

Programmes

A wide variety of programmes was offered not only to meet a spectrum of needs, but also to obtain data for an assessment of those at which a permanent system might aim. There were two general classes of educational programmes: one was based on existing university courses and allowed formal university certification; the other was specially designed for some particular group of participants.

The programmes included:

1. Administration
2. Inter-campus Cooperation in Undergraduate Programmes
3. Outreach Programmes
4. Training of Science Technicians

5. Agriculture
6. Health
7. Social Sciences and Law
8. Education

Examples of Programmes

Science Technician Training

This programme was designed to improve support activities in school laboratories. Four courses each of six months duration were provided and a total of 123 technicians were trained. The programme was mounted at the request of the Commonwealth Association of Science, Technology, and Mathematics Educators (CASTME) as a result of a regional seminar and the Commonwealth Foundation Conference, both held in Barbados in April 1982. The project was supported by the Commonwealth Foundation.

The course consisted of the seven modules in Table 3.

Table 3. Modules Developed for the Laboratory Technicians Course

Module I :	General Laboratory Safety
Module II :	Laboratory Management
Module III:	Laboratory Apparatus and Techniques
Module IV :	Solutions
Module V :	Electricity
Module VI :	Basic Biological Techniques
Module VII:	Basic Mathematics For Laboratory Technicians

Supplemental learning activities were designed to take the place of formal laboratory sessions.

The students were primarily laboratory technicians employed in secondary schools. There was a general requirement of at least one science subject at the GCE 'O' level and passes in other subjects, but a few had no 'O' levels and some had six or seven and even 'A' level subjects. Laboratory technicians from research, hospital, and industrial laboratories, and some teachers from schools without technician support also participated.

The ages ranged from 18 to 30+ years, and the range of work experience was quite varied. This mix of age groups and work experience probably contributed to the good levels of interaction, as too did the small size of the student group at each site.

The students received both end of module and end of course tests which even had an external examiner.

One hundred and one participants received training in this programme. Thirty (30%) did not sit the examinations, but of the remainder the 69 successes represent a pass rate of 97% which seems good evidence that distance teaching is valuable at the science technician level. Interestingly there seemed to be no correlation between numbers of 'O' levels and performance in course tests.

The one consistent criticism was the lack of formal practical sessions. The students themselves were expected to apply what they learned on the network in their day to day work, and some additional activities were arranged in some of the countries but the desire for structured practicals remained strong.

Agriculture

Agriculture is one of the most important sectors of the Caribbean economy and is receiving increased emphasis throughout the region. Agricultural programmes were therefore a key element for consideration for distance teaching but relatively little has so far been done in this area on UWIDITE. Nevertheless, there was some interesting work which is summarised in Table 4.

Table 4. Summary Of Use of UWIDITE for Agriculture-Related Topics

Year	Topic	Sites	Total Hrs.
83/84	General Discussions	All	7
	CARDI	J,B,T	10.5
84	Agric. Extension	J,B,T	3
	Student research Support	J,B,T	3
	Parasitology	J,St.L	8
85	Integrated Pest Management	All	6
	Farmtech '85	All	6

Integrated Pest Management

The only teaching programme related to agriculture has been an in-service Integrated Pest Management (IPM) course for Agricultural Extension Officers, Public Health Inspectors, and Commercial Pest Controllers.

This course ran for 8 hours, 1 1/2 hours per week, from January 15, 1985. The topics were:

Principles of integrated pest management

Recognition and identification of pests

Study of pests

Economic study of the pest

Methods of pest control

Pest Management

Students were provided with print materials as usual. A local supervisor assisted with practicals and demonstrations. Panel discussions were included.

The participants were required to carry out project work - investigating, observing, and classifying host/parasite relationships in crop plants, livestock, and domestic animals; investigating commercial pesticides sold and used locally; biological and cultural control practices, and the developing of an IPM plan for a particular local pest species.

A total of 37 students participated as follows: Barbados 5, Trinidad 8, Dominica 5, Antigua 11. Certificates of participation were awarded at the end of the course.

Farm Tech '85

Farm Tech '85 was a Seminar/Exhibition on Modern Technology for Jamaican Agriculture. It was held January 25 - February 1, 1985 in Kingston, Jamaica. Some 22 papers and 8 case studies were contributed by agricultural scientists from Jamaica, Trinidad, Barbados, Dominica, Canada, Mexico, Nigeria, the United Kingdom, and Japan.

Four teleconferences were used to extend the seminar to participants in the other countries on the network. These covered the following topics:

1. Technology and Agricultural Development in Tropical Countries
2. Advances in Ornamental Horticulture

3. New Technologies for Small Farmers

4. Artificial Insemination Technology in Cattle and Goats.

Health and Nutrition

The Faculty of Medical Sciences has facilities at the Mona campus; the Mount Hope Medical Complex in Trinidad; and the Queen Elizabeth Hospital in Barbados. The Faculty was much interested in the applications of teleconferencing for teaching consultations, administration, and to a lesser extent in developing patient care.

Cardiology

Consultants from the Departments of Surgery, Anaesthetics and Intensive Care, Medicine, and Child Health, and Technologists from ECG and Radiology departments, who have special interests in Cardiology, have been holding monthly consultations of one hour each as of November 2, 1984. These have been mainly with members of the Cardiac Unit and Junior Medical Staff of the Queen Elizabeth Hospital, Barbados.

Teleconferencing allowed cost-effective multi-party discussions of cases in the various countries. It was particularly valuable when deciding about the transfer of patients from one country to another for surgery and reduced the number of cases in which transfer to another country for surgery was not necessary.

The first Caribbean Cardiology Conference was held on October 12, 1985, entirely by teleconference. Some 100 persons in the six countries on the network participated. The conference was by no means free of problems but the participants were enthusiastic and there are plans to make it an annual affair.

Obstetrics and Gynaecology

The Department of Obstetrics and Gynaecology has much use of the UWIDITE system for the following:

a) Consultations/Case Presentations

These have been particularly welcomed in the non-campus countries for the opportunity they allow for wider discussion of difficult and rare cases.

b) Undergraduate Review Sessions

This consisted of a series of review sessions, one hour per week for 10 weeks, for students who had completed the Obstetrics/Gynaecology clerkship. The sessions also allowed the undergraduates to "meet" a number of Consultants in the various countries.

The department mounted a postgraduate review series of 10 one and a half hour sessions once weekly.

The Faculty of Social Sciences

The B.Sc. degree is a three year programme with a common first year consisting of:

- (i) Elements of Economics
- (ii) Introduction to Politics
- (iii) Introduction to Sociology
- (iv) (a) Mathematics and Statistics or
Basic Mathematics for Social Sciences
or
(b) Statistics and Scientific Method
- (v) (a) Introduction to Accounting
or
(b) Foundations of New World History or
History of the Caribbean
or
(c) Constitutional and Administrative Law

Five of these courses are required for entry into the second year but one can be trailed.

Several of these programmes are so highly sought after that the numbers of applicants greatly exceeds the available places. Moreover, specific components of many of the programmes would form an excellent basis for valuable technical in-service programmes tailored to specific needs.

The Challenge Examination Scheme

The Challenge Examination Scheme was implemented in 1978 to allow suitably qualified students in non-campus countries to pursue the first part of the B.Sc. degree in the Social Sciences without having to attend classes on a campus.

The scheme offers the advantage that there is no loss of income for the student and no cost of replacement for the employer, and the Government (or the student) is saved the economic and maintenance costs for one year. There is also the element of selection before the student is committed to the campus programme. This scheme provided UWIDITE, an easily identifiable programme, with a ready-made demand and the results have been quite good. The results for the second offering of the UWIDITE course are in Table 5.

Table 5 Examination Results for Social Sciences, 1984/85

Course	S t u d e n t s				
	Registered (R)	Sat Exam (S)	Passed (P)	(P)%(R)	(P)%(S)
Jamaica					
Accounting	9	5	5	56	100
Intro.to Sociology	7	6	3	43	50
Elements of Econ.	8	5	3	38	60
History of the Caribbean	-	-	-	-	-
Maths & Stats	10	8	3	30	38
Personnel Management & Ind. Relations(CPA)	-	-	-	-	-
Trinidad					
Accounting	-	-	-	-	-
Intro.to Sociology	2	2	1	50	50
Elements of Econ.	1	1	1	100	100
History of the Caribbean	1	1	1	100	100
Maths & Stats	-	-	-	-	-
Personnel Management & Ind. Relations(CPA)	-	-	-	-	-
Barbados					
Accounting	7	7	2	28	28
Intro.to Sociology	6	5	2	33	40
Elements of Econ.	8	7	3	38	43
History of the Caribbean	2	1	0	0	0
Maths & Stats	3	2	1	33	50
Personnel Management & Ind. Relations(CPA)	-	-	-	-	-
Dominica					
Accounting	3	3	3	100	100
Intro.to Sociology	8	5	5	63	100
Elements of Econ.	9	8	6	67	75
History of the Caribbean	1	1	1	100	100
Maths & Stats	7	3	3	43	100
Personnel Management & Ind. Relations(CPA)	7	6	4	57	67

Course	S t u d e n t s				
	Sat		Passed (P)	(P)%(R)	(P)%(S)
	Registered (R)	Exam (S)			
St. Lucia					
Accounting	10	9	6	60	67
Intro.to Sociology	15	8	3	20	38
Elements of Econ.	18	14	6	33	43
History of the Caribbean	10	5	3	30	60
Maths & Stats	18	12	5	28	42
Personnel Management & Ind. Relations(CPA)	5	5	5	100	100
Antigua					
Accounting	12	12	8	67	67
Intro.to Sociology	10	10	3	30	30
Elements of Econ.	11	11	6	55	55
History of the Caribbean	-	-	-	-	-
Maths & Stats	9	9	7	78	78
Personnel Management & Ind. Relations(CPA)	5	5	5	100	100

These examination results are acceptable. No doubt assignments and exercises which would help prepare the students for answering questions in examination conditions would improve the results, but lack of resources is a limiting factor.

Law

The first year of the law degree is also offered under the Challenge Examination Scheme and the Law Faculty has been offering tutorials to students in Dominica, St. Lucia, and Antigua. Students on the Mona campus have also participated. These tutorials originate from all three campuses and have been most welcome.

Education

There are two entry streams to the teaching profession in the Caribbean. One is through the usual undergraduate programmes the other through the Teacher Training Colleges. The products of both streams have felt the need for further training and upgrading and the Faculty of Education has, therefore, long offered full-time one year courses for this purpose. The University graduate teacher reads for a Diploma in Education and the practicing non-graduate for a Certificate in Education, both of which provide opportunities for professional upgrading and, importantly, for higher salaries.

The certificate programme consists of a common core plus one of some dozen specialisations. This programme is ideal for distance teaching for the following reasons:

- (1) the students would be able to obtain the full qualification without reading courses on campus;
- (2) an in-service programme seemed likely to attract many more candidates and allow an increased number of teachers in the non-campus countries to participate.

The numbers of registrations and of courses are in Table 6.

Table 6. Summary of Registrations by Specialty in the Certificate in Education

	Numbers	
	Students	Courses
Teachers of the Hearing Impaired	31	2
Teachers of Reading	78	3
Teachers of Maths	49	2
Teachers of Integrated Science	20	1
	-----	----
	178	8

Table 7 gives the numbers of students who completed at first sittings in the first two courses.

Table 7. Numbers of UWIDITE Certificates In Education Awarded at First Sitzings to UWIDITE Students

	1983/84	1984/85
Teaching of Reading	24 (2)	18 (6)
Teaching of the Hearing Impaired	14 (2)	11 (5)
Teaching of Mathematics	-	10 (17)

() gives the numbers of referred candidates; some have already completed and most of the remainder will complete in 1986.

The performance of these students has been similar to that of their counterparts in the full-time programme and the Faculty is satisfied that standards have been maintained.

Some idea of the potential impact of UWIDITE can be gleaned from the following: the Certificate in Education was first awarded in 1954. Between then and 1984 one thousand and nine awards were made with every country except Anguilla and the Turks and Caicos Islands participating. In 1985 after only two years with six participating countries 77 awards were made with several more candidates to complete. In this short period Dominica has produced as many certificates as in all the previous years and St. Lucia nearly 50% as many. Even Antigua, which joined late, has turned out 33% of the previous number and now has more certificate students enrolled than the previous total of thirty years.

The age distribution of the students is instructive. Almost all the students were in the 26-45 age group. These are at an age and career stage which would normally make paid study leave and replacements in the classroom necessary to allow them to proceed to a campus. The UWIDITE programme offers opportunities which would probably never otherwise be available.

These seem very significant achievements which have cost the countries and individuals very little. Table 8 gives the costs which would have been incurred by each country had they sent students to Mona, and includes an estimate of the costs of study leave and staff replacement. These could be obtained accurately but for the present purposes a (very low) figure of J\$15,000 per student is used.

Table 8. Student Numbers in Certificate in Education Programmes and Total Economic Costs Plus Maintenance

	J	B	T	A	D	SL
October 1983						
Number	18	5	5	-	6	8
Economic Cost + Maintenance	439,920	122,200	122,200	-	146,640	195,520
Replacement + Leave	270,000	75,000	75,000	-	90,000	120,000
	709,920	197,200	197,000	-	236,640	315,520
October 1984						
Number	15	10	18	7	10	11
Economic Cost + Maintenance	366,840	244,560	440,208	171,192	244,560	269,016
Replacement + Leave	225,000	150,000	270,000	105,000	150,000	165,000
	591,840	394,560	710,208	276,192	394,560	434,016
October 1985						
Number	32	5	10	5	4	9
Economic Cost + Maintenance	958,000	149,750	299,500	149,750	119,800	269,950
Replacement + Leave	480,000	75,000	150,000	75,000	60,000	135,000
	1,438,000	224,750	449,500	224,750	179,800	404,950
Totals	2,739,760	816,510	1,356,708	500,942	811,000	1,154,486
A=Antigua B=Barbados D=Dominica J=Jamaica SL=St. Lucia T=Trinidad						

The total annual costs for all the six countries had these students been registered in the usual courses would have been J\$1,656,480; J\$2,801,376; and J\$2,921,650; say J\$7.4 million or US\$1.3 million. The estimate of costs for the UWIDITE operations for the eighteen month period beginning August 1986 is about J\$3 million (US\$545,500) so that in principle the annual savings from this one programme could meet all the recurrent costs of UWIDITE. This says a great deal about the cost effectiveness of UWIDITE.

These education courses have been real successes in terms of the numbers graduated, the quality of the students' performances, the interest of the faculty, and the much lower costs of the distance teaching programme. While it should not be claimed that distance teaching is better than attendance at a campus with all the facilities, etc., these courses seem particularly well suited to distance teaching and it does appear that the non-campus countries with UWIDITE sites can take advantage of distance teaching to obtain all the training they require at this level.

Analysis of Trends

The objectives of UWIDITE were to:

- (1) demonstrate that a sufficient level of demand exists to support an operational system;
- (2) create within UWI an interest towards meeting identified demands by teleconferencing so that the institution will incorporate these as part of its armory;
- (3) establish a core of experience and of experienced workers to allow the efficient design, staffing and implementation of a fully operational system for distance teaching and outreach;
- (4) help to develop mechanisms and expertise for the production of educational materials e.g. print, audio, and audio-visual materials;
- (5) develop a proposal for a permanent service.

These have all been achieved so the next challenge is to determine exactly what programmes are most in need and exactly how they will be delivered. No doubt the argument over broadcast or interactive programmes will resurface in many guises and perhaps in the end both will be accommodated.

5.0 GAPS IN THE RESPONSE TO EDUCATIONAL NEEDS

The biggest gap perhaps is that distance teaching is not even beginning to meet the needs below the tertiary level. UWIDITE cannot be responsible for these needs but its success may encourage others to attempt programmes at other levels.

Otherwise the biggest gaps are:

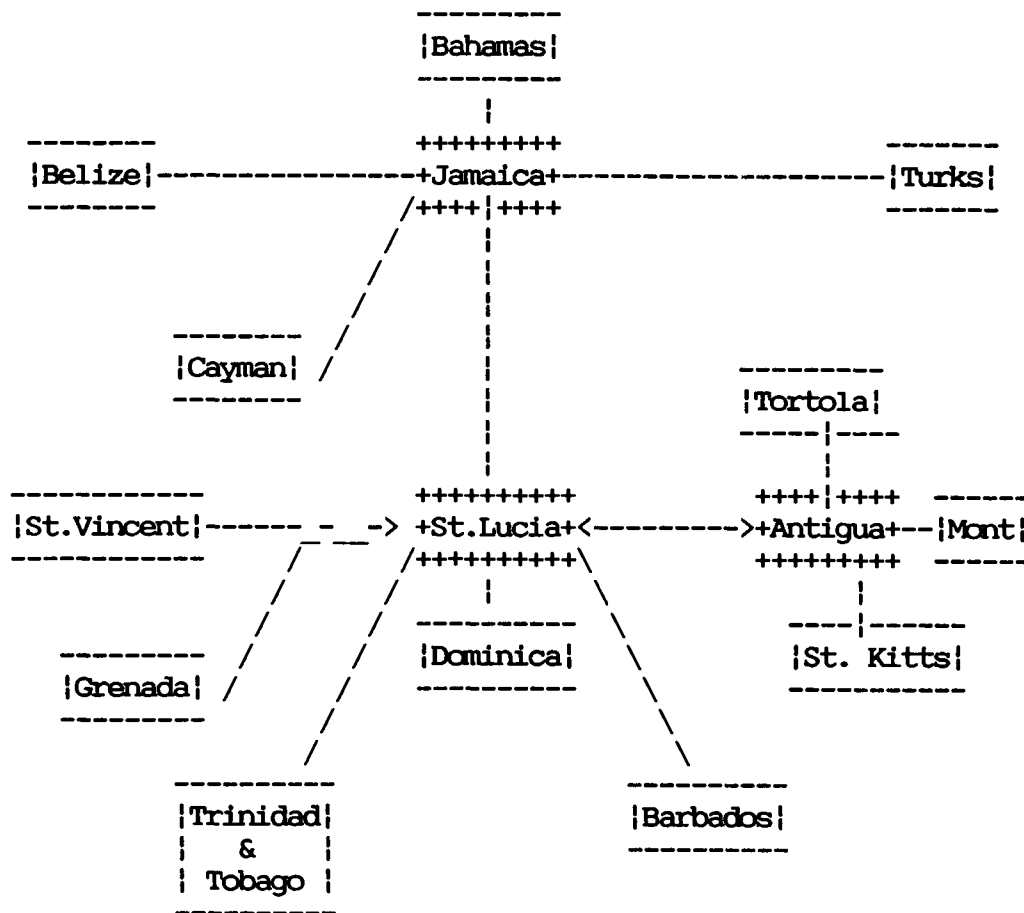
- (1) the present inability to reach more countries. The Western Caribbean and the Bahamas still have no sites;
- (2) the large number of programmes which cannot now be offered since the afternoon to night hours are already so much in demand;
- (3) the fact that it is still largely the urban communities which benefit.

6.0 FUTURE DEVELOPMENTS

Expansion of the System

Planned developments take the above into account. UWIDITE presently serves only 6 of the 14 countries which support UWI so that a priority must be an early extension to other countries and, perhaps, to develop more than one site in particular countries where appropriate.

Technically the best way to expand would be to utilise the point-to-multi-point power of a full satellite network, and there are powerful satellites aloft with footprints which cover the Caribbean. The technology is available but there are still so many problems involved in getting started that a network similar in design to the present one may be more feasible. With all its attendant problems, which cannot be unsolvable, at least only funding is the major obstacle to beginning. A likely schematic for an expanded system follows:



The expansion of distance teaching will require more communications hardware, additional space at the Extra-Mural Centres, laboratories if practical sciences are to be taught, and library facilities. It would be logical to tie some of this into the tertiary systems in the non-campus countries. Moreover, additional staff both for teaching and to operate and administer the programme would be needed. More telephone channels would also allow simultaneous classes, and much expand the number of persons who could be reached.

New developments are to be investigated. These should include applications of some aspects of Telemedicine for which the additional cost could be marginal.

Intra-Island Distance Teaching

Small as the Caribbean islands may be a considerable number of would-be students cannot take advantage of UWIDITE because their homes are too far from the sites. It would be appropriate to examine the use of radio for intra-island communication since the inland telephone "lines" are expensive, frequently noisy and unreliable and are routinely disrupted by heavy rains.

A dedicated FM system seems best. This could be used in a stand alone mode when not linked to the UWIDITE network. A combination of "line of sight radio" and a system as sketched above would represent a powerful basis for education, training, and public service, and doubtless be of interest to some African and Pacific countries.

7.0 COOPERATION WITH OTHER INSTITUTIONS

Because of the particular situation of the university UWIDITE is itself an example of international cooperation. The programmes originate in one or more of the six countries and all six are recipients. A selection of examples of particular interest is presented below.

Existing Programmes

Training of Pre-School Trainers

One of the first programmes on the network was "Principles of Training", mounted by the Regional Pre-School Child Development Centre (RPCDC), for day care and pre-school staff in the various countries. Twenty persons participated in the first course.

Training of Caribbean Labour Administrators

This programme was designed because of the difficulty and expense the Regional Labour Administration Advisor of the Caribbean Labour Administration Centre (CLAC) found in carrying out programmes in the scattered region. CLAC was established by the International Labour Organisation in 1978 to provide technical assistance to Ministries and Departments of Labour. UWIDITE serves only 6 countries but it was found cheaper and cost effective to fly in participants from each of Grenada, Guyana, Montserrat, St. Kitts, and St. Vincent each week to the nearest UWIDITE site. The sessions were held for three hours on each Saturday morning for 12 weeks during the period July 7 - Sept. 26, 1985. The lecturers operated from Antigua, Barbados, Jamaica and Trinidad.

Participants

The numbers of participants and awards from each participating country are in Table 9.

Table 9. Numbers of Participants and Certificates Awarded in CLAC Training Course.

	Participants	Awards
Antigua/Barbuda	5	2
Barbados	7	5
Dominica	6	4
Grenada	1	1
Guyana	1	1
Jamaica	7	3
Montserrat	1	0
St. Kitts/Nevis	1	1
St. Lucia	5	4
St. Vincent	1	1
Trinidad/Tobago	6	6
	---	---
	41	28

It is impressive that as many as 41 persons who hold full-time jobs were willing to give up Saturday mornings for as long as 12 weeks on a stretch. The success rate was 68%. Thirteen awards were not made because of poor attendance. Among the reasons given for absence were transfer, vacation leave, and in only two cases insufficient interest by the nominees.

Between December 1978 and September 1985, CLAC had provided training for some 200 officials through seminars, workshops, attachments, etc.; this UWIDITE programme therefore represents a significant contribution. The course was well received and in the view of the participants - students, tutors, and collaborators - it produced entirely satisfactory results. CLAC remains in touch with UWIDITE and it is expected that further programmes will be developed.

Emergency Health Management

The Pan Caribbean Disaster Prevention and Preparedness Project (PCDPPP), and the University's Department of Social and Preventive Medicine (DSPM) mounted a short course, funded by the Pan American Health Organisation (PAHO), in Emergency Health Management after Natural Disasters.

The course began on March 20, 1985 and ran until June 5, 1985, with weekly sessions of 1 1/2 hours duration. Antigua, Barbados, St. Lucia, Trinidad, and Jamaica (Mona and Montego Bay) took part. Dominica joined for a few sessions. There were 37 regular participants with 5 occasional visitors. The participants were: doctors, nurses, public health inspectors, and administrators.

The course topics were:

Effects of Disaster on Health
Co-ordination of National Relief Activities
Management of Mass Casualties
Epidemiologic Surveillance and Disease Control
Environmental Health Management
Food and Nutrition
Temporary Settlements and Refugee Camps
Communication and Transport
Management of Health Relief Supplies
Management of International Relief Assistance
Re-establishing Normal Programmes
Disaster Preparedness

The course was very well received and the participants agreed that repeat courses and follow-up sessions would be useful.

Fertility Management

This was the major programme in health. It was funded by the Johns Hopkins Programme for International Education in Gynaecology and Obstetrics (JHPIEGO) and provided postgraduate courses for nurses and doctors throughout the six participating countries. The course was designed and mounted by UWI's Advanced Training and Fertility Unit.

The topics covered in the physicians' programme were:

- (1) Human Sexuality
- (2) An Approach to Subfertility
- (3) Update on Fertility Control
 - a) Oral Contraceptives
 - b) The Injectables
- (4) Natural Methods of Family Planning;
The IUCD and Barrier Methods
New Directions
- (5) Clinic Management
- (6) Voluntary Sterilization
- (7) Open Session: Common Clinical Problems
- (8) Pregnancy Testing; Pre- and Post Natal
Care

- (9) Care and Management of High Risk Pregnancy
- (10) Gynaecological Cancer Screening and Follow-up
- (11) Sexually Transmitted Diseases
- (12) Population Dynamics
- (13) Caribbean Family Laws

The components of the Nurses' programme were the same, except that items 2 and 9 were replaced by Counselling and Diagnosis, Management, and Referral of 1st Trimester Wastage. These programmes have reached 107 doctors and 265 nurses across the various sites.

Nutrition for Community Workers

The Caribbean Food and Nutrition Institute (CFNI) of the Pan American Health Organisation presented courses for community workers who are employed in the fields of agriculture, education, health, and community development. The aim was to: update concepts; promote an awareness of nutrition problems and measures to overcome them; and to strengthen skills to promote good nutrition practices in the community.

The courses covered aspects of:

- * working with the community
- * food and good health
- * how to buy, store and prepare foods properly
- * nutrition during pregnancy and breast feeding
- * young child nutrition
- * health problems related to food and nutrition
- * improving health and nutrition in the community

Inter-Campus Cooperation in Lecture Courses

The Caribbean Institute of Mass Communication (CARIMAC) and the Department of Geology both presented portions of their courses to students in Mona using lecturers on other campuses. CARIMAC also used the network for teleconferencing with Ohio State University for the planning of their own communications developments.

The Department of Geology used the network to have a section of its programme, Engineering Geology, taught from St. Augustine.

A number of short programmes/teleconferences were arranged outside the region. These include:

- Ohio University, Ohio U.S.A.
- Fibresat Conference, Vancouver, Canada
- Academy for Educational Development, Washington D.C., U.S.A.
- College of the Virgin Islands, St. Thomas, Virgin Islands
- Cape Cod Community College, Massachusetts, U.S.A.
- Miami Children's Hospital, Florida, U.S.A.
- Memorial University, Newfoundland, Canada.

There is likely to be significant cooperation with the College of the Virgin Islands in the future. At this time the work with Memorial University is the most important of the collaborations. There is a satellite link provided by Intelsat's Project Share between Newfoundland and Mona. The link is patched into the UWIDITE network so that the other sites can share in the teleconferences. This link is used mainly for medical discussions and for planning future cooperation. It is, for example possible that the Caribbean net can join in Memorial's link with Africa.

Assessment of Co-operation to Date

UWIDITE is relatively new and the efforts to get the system underway, to write the print material and to produce videotapes left little time for large scale co-operative programmes. The examples of co-operation described above have been highly effective. They have provided the other institute with an opportunity which would have otherwise been impossible, assisted UWIDITE financially and provided useful experience and public relations.

There has to date been little fruitful contact except for attendance at the occasional conference with the various associations of distance education; these are expected to grow.

New Initiatives

Now that UWIDITE is established much more is possible and the links with Canada, Memorial University in particular, are expected to grow. There are hopes that useful links can be established with Africa and the Pacific.

8.0 CONCLUSIONS

Over the years advances in technology have often raised great hopes of improving educational methods but have not yet made great impact on formal education. However, advances based on the computer and telecommunications have opened such opportunities that the present environment for higher education is changing very rapidly.

It is doubtful that any human endeavor has equaled the growth rate of communications. The telegraph was invented in 1832 and on the average the doubling time of communications capability has been 4 years. The computer is really only one third of a century old so the growth trends and symbiosis must almost certainly continue for many more years.

The world's telecommunications capacity is increasing at a formidable pace. For example were Intelsat's present rate of growth to continue, by 2025 that network alone could handle 130 billion telephone calls simultaneously; this is more than ten times the estimated population of the Earth at that time. Though not particularly significant this extrapolation does give some indication of the extent to which new services, data

transmission, teleconferencing, and other applications could be possible. An enormous capacity could be available and the opportunity for education as channel costs are reduced and technologies mature still seem like figments of imagination.

Even discounting the enthusiasm there often is for novelty it is hard to see how the new technologies can fail to have a very large impact for good on many aspects of education. The residential courses will obviously benefit but it is the ability to provide quality education far from centres where the greatest difference may well be felt.

We believe that telecommunications will allow the aggregation of units across the Caribbean into more economic sizes; encourage the sharing of human resources; and help to overcome many of the problems of isolation. This last may help reduce the "brain drain" from the smaller to the larger Caribbean territories. Certainly the experience to date has been that the programmes offered to professionals have had as a large component of their success, the aspect of being able to meet colleagues and share experiences by teleconferencing. The concept of interactive distance teaching in the Caribbean seems well founded; the technology is available; the need seems proven. There seems every reason why the same should apply in many other regions.

By the mid 1990s education and training could be delivered world wide from any point. Continuing education may be as important then as formal education is today, and more than ever there will be competition for students and the minds of people. Unless the developing regions can deliver the education required by its peoples, the 21st century could present a situation in which our students are trained from distant lands and give rise to much more than the cultural invasions due to satellite television which some people are so worried about today.

If, on the other hand, educators and the telecommunications companies can rise to the challenges of application of the technologies; harness the new technologies to make education cheaper, more available, and of better quality; if we can remove the loneliness of professional isolation and therefore one reason for the brain drain, an educational tool of superb value would have been developed.

PAPER 6

DISTANCE EDUCATION IN INDIA

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CHAPTER SIX

I. THE EDUCATION SYSTEM IN INDIA

The education system in India is vast and varied. It is a gigantic enterprise with about 755,000 institutions, 3.5 million teachers, 130 million students and an annual expenditure of Rs.30,000 million. The national stock of educated manpower is about 48 million, the annual increment to the stock now being of the order of 3.5 million.

There has been a great deal accomplished since Independence. As pointed out by the Seventh Five Year Plan any number which may be picked up as a parameter to define growth in education will show the magnitude of the quantitative expansion that has taken place. A brief account of the expansion in its different levels is attempted below.

Elementary education

The Constitutional directive for achievement of universalisation of elementary education has not yet been achieved but the progress made so far is significant. The number of institutions, enrolment and teachers at the elementary stage have shown a tremendous increase over the years. It is, in fact, the large increase in population which has depressed percentages and diminished to some extent the impressiveness of the achievements. During 1950-1982*, primary schools recorded an increase of 140 per cent and the middle schools recorded more than a nine fold increase. The coverage of population by schooling facilities has become more or less universal as far as education at the primary stage is concerned, while middle stage facilities have been made available within a walking distance of 3 km to more than three-quarters of the population of the country.

Non-formal part-time education has developed in a large way as an alternative to formal schooling. Under this system children who cannot attend the formal schools because of socio-economic reasons are offered elementary education of the same standard at places and times suited to their needs. Children in the age-group 9-14 (9-11 for the primary level and 11-14 for the middle level) are offered education in non-formal centres in a graded and condensed form. The major thrust of non-formal education is in the nine educationally backward states for which special central assistance is extended by the Ministry of Education. These nine educationally backward States, which among themselves hold more than 80% of the non-enrolled children in the age-group 6-14, are Andhra Pradesh, Assam, Bihar, Jammu and Kashmir, Madhya Pradesh, Orissa, Rajasthan, Uttar Pradesh and West Bengal. This central scheme was started in 1979-80.

* Figures for this section have been drawn from the following sources: A handbook of Educational and Allied Statistics Ministry of Education and Culture, Government of India 1983: Selected Educational Statistics 1981-82 and 1983-84, Ministry of Education and Culture; and draft seventh five year plan.

While the increase in enrolment at the elementary stage during the past three decades has been satisfactory, the problems of stagnation and dropout have more or less overshadowed the progress achieved. In order to enhance enrolment and retention at the elementary stage of education, the Central and State governments have focused attention on overcoming the social and economic barriers which prevent children from continuing their education at least up to the end of the elementary stage. The provision of incentives in primary and middle schools is among the important programmes designed to prevent drop-outs as well as to increase the enrolment of children at the elementary stage.

The total number of primary and middle school teachers has increased substantially during the past three decades. The number of primary school teachers has increased from 538,000 in 1950-51 to 1,389,000 in 1982-83 and middle schools teachers from 85,000 in 1950-51 to 856,000.56 in 1982-83. The average number of teachers per school and the percentage of trained teachers have also increased during the last three decades.

If one looks at the current situation regarding girls education at the elementary stage, the scene appears to be highly disquieting. The main problem of universal elementary education, in fact, is the problem of enrolment of girls. Its magnitude can be assessed from the fact that the girls constitute 80% of the total non-enrolled children in the age group of 6-14. The incidence of wastage and stagnation is high among girls.

The deficiencies at the elementary stage of education are largely a consequence of inadequate investment. Although total outlay on elementary education has increased from Rs.930 million in the First Five Year Plan (1951-56) to Rs.9,050 million in the Sixth Five Year Plan, the percentage share of elementary education has decreased from 56% in the First Five Year Plan to 36% in the Sixth Five Year Plan.

Secondary education

The growth of secondary education since independence has, in fact, been phenomenal. Whereas in 1947, the number of secondary schools in India was only 4,000, in 1960-61 there were 17,257 secondary schools. By the year 1982-83 this number had increased to 52,279. If we add the number of Intermediate and junior colleges which offer courses equivalent to senior secondary stage the total works out to 56,602.

The number of students, which was 700,000 in secondary schools and Intermediate colleges in 1947, has risen to 14,000,000 in 1982-83. The participation rate has increased from 4% to 22%. The number of teachers in Secondary/Senior schools has increased from 93,000 in 1947 to 993,115 in 1982-83.

Although there has been a large expansion of secondary education since independence, 264,860 habitations (27.46%) do not have a secondary school within even 8 km. The Education Commission had recommended a secondary school within a distance of 4 km. According to Fourth All-

India Survey, 57 per cent of the total population does not have a secondary school within that distance.

Out of the total enrolment of 20,211,000 in high schools in 1982-83, girls constitute only 7,048,000 (34.65%). Similarly, out of the total enrolment of 7,685,000 in higher/senior secondary schools under new pattern, girls constitute only 2,471,000 (32.1%).

The percentage of trained teachers in high schools in the country (up to standard X) in 1982-83 was 89.3. Six states, namely, Assam, Manipur, Meghalaya, Nagaland, Sikkim and Mizoram have less than 50 per cent of trained teachers.

There are now 1,700 or so existing higher secondary schools with vocational stream, we have nearly 5,000 vocational institutions with an intake capacity of over 7,000,000 students. These institutions train full-time students through formal institution-based programmes to meet the requirements of various organised sectors of employment. These institutions are: polytechnics, ITIs, junior technical schools, handicrafts schools, industrial technical schools, agricultural Schools, animal husbandry schools, pharmacy Schools, nursing and health visitors schools, commercial training schools, village officers schools, drawing and painting schools and a number of other private organisations. Other than the above mentioned institutions, the agencies/ programmes conducting non-formal vocational courses include: community polytechnics, TRYSEM, Krishi Vigyan Kendras, Nehru Yuvak Kendras, school welfare centre and the National Rural Development Programme.

Higher education

Though education at all levels contributes to national development, higher education in particular assumes particular significance by developing social capabilities among people in terms of higher order knowledge and skills and generating the new knowledge necessary for development and self-reliance. As higher education trains people for a wide variety of increasingly sophisticated and ever-changing capabilities needed in industry, agriculture, administration and services, it is in a sense the "mother profession".

Immediately after Independence there was an unprecedented linear expansion of higher education in the country. In view of the prevailing conditions at that time it was felt that expansion of education, even in purely quantitative terms, would lead to an accelerated growth of the national economy. Consequently, there took place a spectacular growth in the tertiary sector. In the initial phase, qualitative improvements, so essential for the proper growth of education, were neglected to some extent. Simultaneously, an unplanned proliferation of universities and colleges took place. The universities were also not able to withstand pressures for admission and adopted an open door policy.

During the last decade, efforts have been made to regulate the growth of higher education as well as the establishment of new universities

and colleges so as to ensure that higher education grows in response to the needs of society for trained manpower with appropriate levels of professional training, skills and specialisations.

The following points have to be kept in view in the context of growth of higher education since Independence:

- (a) enrolment at the level of higher education as a proportion of the relevant age-cohort is hardly adequate in spite of the explosion in numbers;
- (b) although there is a need to regulate expansion in view of the limitation of resources, it is not easy to deny expansion altogether, as weaker sections of society have looked to higher education as a means for social and economic mobility; and
- (c) the demand for education should not be judged purely from the point of view of the labour market, but due consideration should also be given to the social, cultural and humanistic aspects of education.

Between 1951 and 1985 the number of universities and institutions deemed to be universities increased from 22 to 140. Similarly the number of colleges has gone up from 695 to 5,482 and the number of students enrolled has gone up from 174,000 to 3,538,000. In spite of this increase, the proportion of tertiary level students to the total population in the age group 17-23 is only 4.8% which compares very unfavourably with some Asian countries like the Philippines (25), South Korea (18) and Japan (30) as well as with USA (55) and USSR (18). These figures show that higher education in India lags far behind the above countries, some of which are in a comparable state of industrialisation. 87% of the secondary school leavers are in our country enrol in higher education. With the expansion of the school system, the number of students joining higher education is increasing rapidly.

Even conservative estimates for 2000 AD indicate that enrolment in higher education is expected to double, to roughly six and a half million students. Other estimates, strongly reasoned, suggest that enrolment will quadruple in the next twenty years, as it did in the last twenty years. It is clear that we will face a growing crisis unless the present problems are adequately tackled.

Another dimension is regional disparities in enrolment. The variations in enrolment per 100,000 of population are very large. It varies from 61 in Arunachal Pradesh to as high as 5,366 for Chandigarh, the all India average being 400 per 100,000 of population.

Resource needs of higher education have undergone a tremendous change, owing to the knowledge explosion, and introduction of new and sophisticated technology in the teaching-learning process and in research. The picture of resources actually available to higher education is indeed sad; per student per annum public expenditure declined in 1975-76 to Rs.3664/- from Rs.4011/- in 1950-51 in the case

of universities and institutions of higher education; at constant prices in the case of general colleges, the decrease was from Rs.486/- p.a. to Rs.330/-. Even for professional courses, where high inputs are an imperative for quality education, per student resource allocation has been reduced to half of what it was in 1950-51.

The problems which affect the proper development of higher education and its quality as well as the role played by the UGC in determination and coordination of standards in Higher Education are categorised by the Ministry of Education, Government of India as follows:

- (a) Planning, administration and resources
 - lack of proper planning
 - rigid and centralised administration
 - poor internal efficiency of the system
 - autonomy and accountability of institutions
 - lack of coordination between different agencies
 - lack of resources and defective procedures of funding
 - inadequate measures to reduce inequities in the system
- (b) Curricula, methodologies, academic autonomy and social concern
 - rigid and centralised curricula without much social relevance or concern
 - outdated methodologies of teaching
 - external examination system leading to malpractices
 - poor educational inputs
- (c) Teachers
 - their recruitment and opportunities for orientation, professional and career development
 - poor living and working conditions
 - poor work ethos and professionalism
- (d) Exogenous factors
 - politicisation of campuses
 - place of education in the total socio-economic structure
 - declining role of community
- (e) Role of University Grants Commission
 - UGC's role in determination and coordination of standards
 - inadequate resources with UGC and lack of responses from State Governments
 - lack of planning and monitoring system in UGC.

Vocational and technical education

Vocational and technical education has been defined as a comprehensive term embracing those aspects of the educational process involving, in addition to general education, the study of technologies and related sciences and the acquisition of practical skills, attitudes, understanding and knowledge relating to occupations in the various sectors of economic and social life. Traditionally, vocational

education has been understood as the education designed to prepare skilled and semi-skilled personnel, junior and middle level personnel and semi-professionals for one or more groups of occupations, trades or jobs. Vocational education is usually provided at the upper secondary level and includes general education, practical training for the development of skills required for the chosen occupation and related theory. The proportion of each of these components may vary considerably but the emphasis is usually on practical training.

Out of 22 States and 9 Union Territories in India, the 10 + 2 pattern of education has been introduced in 20 States and all the Union Territories. A vocationalisation programme has been introduced in 10 states (with the addition of U.P. in 1985-86) and 4 Union Territories and courses have been started in nearly 1,700 schools and junior colleges with a total enrolment of 60,000 students every year. At present, the states have organised vocational courses in six/seven categories with certain similarities of pattern. The categories include agriculture, business and commerce, engineering and technology, health and paramedical services, home sciences, humanities.

In 1947, there were only 53 polytechnics conducting diploma courses with a total intake of 3,700 students, and an output of about 1,500 per year. The corresponding figures in 1966 became 284 polytechnics with an intake of about 49,000 and output of approximately 23,500.

In 1968 due to industrial recession, admissions capacity were restricted to 37,000 students, with only 27,000 places actually filled. The intake was slowly restored to its original position by 1975-76 and continued more or less unaltered till the beginning of 1980s when new polytechnics were opened. There are now 410 recognised polytechnics, with another 105 in the private sector, and an annual intake of about 60,000 students (or 75,000 including the private institutions) and an output of more than 35,000 diploma holders every year.

Similarly there were only 39 degree level institutes with an intake of about 2,940 students in 1947. By 1965-66 the intake was about 24,000 in 137 institutes, reduced to about 18,000 in 1968-69 with an actual intake of 15,400. The trend set during the 1970s underwent a significant change during the eighties the with admission capacity in 156 degree level colleges increased to about 35,000 students. Including the new private institutions, the number of colleges offering degree programmes is 200 and intake is more than 45,000 students. Starting from scratch in 1947, 74 institutions today offer post-graduate programmes to about 6,000 scholars per year and by 1981 63 institutions were admitting 500 scholars to doctoral studies every year.

The average number of degree holders and technical personnel per thousand population is 3.2. The states which are far below the norm are Andhra (2.51), Bihar (2.29), Meghalaya (2.38), Nagaland (2.45), Orissa (2.22), Arunachal Pradesh (2.63), Dara and Nagar Haveli (1.79) and Lakshadweep (0.64). At the other end are Chandigarh (65.48), Delhi

(34.23), Andaman and Nicobar (10.67), Kerala (6.27), Maharashtra (5.51), and Punjab (5.13).

The resources for technical education come both from central and state sectors. The IITs receive funding from the centre, RECs are a shared responsibility and state engineering colleges get little central funding. Polytechnics are the responsibility of the states.

The data available indicate that the central allocation for technical education as a proportion of the total educational allocation was 8.14% in fourth plan, 6.66% in the sixth plan and 4.1% in the seventh.

Adult education

The significance of adult education as an instrument of developing the human resources potential of the country, arousing community consciousness and community participation for bringing about social change and development was recognised by the policy-makers and planners of independent India. A number of programmes were started after Independence to eradicate illiteracy among adults. Some of the important ones were social education, Gram Shikshan Mohim, farmer's functional literacy project, non-formal education, and polyvalent adult education centres

In 1978, a comprehensive National Adult Education Programme for the age group 15-35 was launched.

At present, the Adult Education Programme is being implemented largely through the following schemes:

1. Centrally Sponsored Scheme of Rural Functional Literacy Projects;
2. Central Scheme of Assistance to Voluntary Agencies working in the field of Adult Education;
3. The State Adult Education Programme in the State Plan;
4. Shramik Vidyapeeths for industrial workers and their families for which a hundred per cent central assistance is provided.
5. Scheme of financial assistance provided by the UGC to Universities and Colleges to organise adult education programmes and establish centres of Adult and Continuing Education in Universities.

Adult education programmes receive technical support from the National Resource Centre (Directorate of Adult Education), and the State Resource Centres where need-based and functional teaching-learning material on a wide variety of subjects are being prepared for adult learners. The State Resource Centres also print wall posters and magazines for the neo-literates. Regular training is provided to the field functionaries by the Resource Centres.

Considering the slow growth of literacy in the last three decades, from 16.67 per cent in 1951, 24.02 per cent in 1961, 29.45 per cent in 1971 to 36.23 per cent in 1981, while it may be difficult to envisage that an adult education programme could make any demonstrable impact in accelerating the rate of growth during the next decade, it has to be appreciated that the consequences of not placing adequate emphasis on universal literacy or ignoring the importance of adult education would entail very high social costs which the nation can ill afford to bear. It has been estimated that the total illiterate population of the world in the year 2000 AD will be 954 millions. More than 500 million of these illiterates are expected to be in India. According to the World Bank estimates, India will have 54.3 per cent of the world's illiterate population in the age group 15-19. This indicates the magnitude of the task ahead.

II. DEVELOPMENT OF DISTANCE EDUCATION

The background

The roots of distance education in India are not very deep. The goals of education in pre-British India were limited and restrictive in nature. Education was a privilege of only a few social classes and groups. Society was highly inegalitarian and stratified and this was reflected in education with disparities based on caste, sex, ethnicity and place of residence were.

Education was not related to the socio-economic development of the society. Its broad aims were preservation of ancient heritage and culture and training the upper castes in social and religious duties. It used a classical language, which was not the spoken language of the population. Elitism, thus, was the dominant feature of the traditional system of education in India.

During British rule the objects, functions and purpose of education were different, but they too were restrictive and narrow. Education aimed to train personnel for administration, and develop a small class of educated persons by exposing them to the literature, science and philosophy of the West.

Equalising opportunities and democratising education were not the objectives. Communication technology was available for the British but it was not used for spreading education.

The system of education promoted and furthered in pre-independent India broadly continued in independent India. The University Grants Commission highlighted the major weaknesses as follows:

- * It still continues to be dominated by models and value systems adopted during the colonial regime. For instance, it lays greater emphasis on narrow individualism, unhealthy competition to the neglect of social goods, verbal fluency (especially in English), and mere acquisition of information, while it neglects social objectives, co-operation, manual work, training in skills and building up of character...

- * The system maintains a set of double standards. A small minority of educational institutions at all levels is of good quality and compares favourably with those in developed countries. But access to them is selective and is mostly availed of by the top social groups...
- * Even in quantitative terms, it is mainly the upper and middle classes that are the beneficiaries of this system...

The major failures are described by 'Citizens for Democracy' in their 'Policy Frame for the Development of Education 1978-87'

- (1) the failure to transform the existing structure of formal education so as to make it elastic, dynamic, and supportive of the maximum possible freedom to schools, teachers and students to experiment and innovate;
- (2) the failure to develop large-scale and effective programmes of non-formal education at all stages;
- (3) neglect of micro-level living cells of education (i.e. the millions of learning groups where action and the reaction continually takes place between the teachers and learners or between the learners themselves), many of which have become diseased or even dead;
- (4) failure to orient the educational system to the needs and interests of the common man and neglect of elementary and adult education;
- (5) over-emphasis on secondary and higher education and on the educational needs and demands of the upper and middle classes;
- (6) failure to take the hard decisions, both political and academic; without which a radical reform of secondary and higher education is not possible;
- (7) failure to generate a strong and nationwide movement for educational reform and to sustain it over the years, both within and without the educational system;
- (8) failure to develop the social and political forces that can help the people to come into their own;
- (9) failure to launch a programme of simultaneous and complementary social and educational transformation.

It is in this context that the idea of distance education began to emerge.

A. Distance Education at University Level

The start of university correspondence institutes

At one of the conferences of Vice-Chancellors of Universities jointly convened by the Ministry of Education and Culture and the University Grants Commission the Chairman of the University Grants Commission posed the following questions:

- (i) Should the formal systems of education, which are often wrapped up in their 'neutrality and intransigence' have a monopoly for imparting knowledge or should there be alternative delivery systems like distance-learning comprising correspondence courses, radio and television programmes, part-time evening institutes and Open Universities?
- (ii) Should education be fitted into a strait-jacket and constrained to follow a single track and a set pattern or should there be enough flexibility, choices and alternatives to enable the student to move horizontally as well as vertically?
- (iii) Should the society become a hierarchy, in which those who are educated do not soil their hands and others who do manual work have no opportunity for receiving the benefits of education?
- (iv) Should the centre of gravity be on teaching or learning; on mere acquisition of knowledge or on the student experimenting with his tools in the laboratory, browsing in the library and developing independent thinking, critical faculty and the capacity to apply knowledge to a solution of societal problems?

The society which scorns excellence in plumbing because plumbing is a humble activity and tolerates shoddiness in philosophy because it is an exalted activity will have neither good plumbing nor good philosophies. Neither its pipes nor its theories will hold water.

- (v) Should not the system of education enable the learner to learn whatever he wants to learn and to learn the contents at his own pace and at a place of his choice?
- (vi) Should our paradigm of higher education be such that jobs and degrees become inseparably linked and education becomes subservient to the needs and requirements of the labour market and consumer society? Does not education lead to economic as well as cultural satisfaction?

Some initiatives in response to these questions were the beginnings of distance education in the country. To provide greater educational opportunities, universities started permitting students to appear for their examinations as private candidates. To enter, candidates need only to have prescribed the qualifications. The syllabus is the same as that prescribed for regular students. Students study on their own, with no help from the university. Most take the help of tutorial colleges.

Such external examinations were introduced by a large number of universities. Though the system quenched the thirst for higher education to some extent, it created several problems for the students. There was neither instruction nor guidance from teachers. Students were left to the mercy of tutorial and coaching institutions. The external examination system has attracted criticism as an irresponsible degree manufacturing system. It became a good source of income for many universities.

In 1961 the Central Advisory Board of Education decided to introduce the system of correspondence courses to provide educational opportunities to larger groups of pupils. The Ministry of Education, Government of India, appointed an Expert Committee on Correspondence Courses and Evening Colleges in 1961 headed by the then Chairman of the University Grants Commission Dr D S Kothari. The Expert Committee made many valuable suggestions; the Government of India accepted the recommendations and allowed the universities to start correspondence courses. The first correspondence course in B.A.(Pass) degree was introduced in 1962 by the School of Correspondence Courses and Continuing Education as a college established and maintained by Delhi University.

The Growth and Deterioration of the System

Within a year the correspondence courses attracted a large number of students. Encouraged by the success of the experiment, the Education Commission (1964-66) observed: "The correspondence or home study course is a well tried and a tested technique. Experience of correspondence courses in other countries of the world such as the USA, Sweden, USSR, Japan and Australia, where they have been used extensively for a long time ... encourages us to recommend fuller exploitation of the method for a wide range of purposes. The opportunities for part-time education through programmes like evening colleges and own-time education through programmes like correspondence courses should be extended as widely as possible and should also include courses in science and technology (either at the degree or diploma level). They will help reduce the capital costs to a substantial extent, especially as enrolments grow. They are the only means to provide higher education to those who desire to study further but are compelled on economic grounds to take up employment at the end of the school stage.

We suggest that by 1986 at least one third of the total enrolment in higher education could with advantage be provided through a system of Correspondence Courses and evening colleges."

A 1967 UGC committee considered the question of extension of correspondence courses to other universities, and made the following recommendations:

- (a) Correspondence courses should be started only in well-established universities with strong faculties;

- (b) Duplication of courses for the same degree should be avoided unless there are compelling reasons to do so.
- (c) The universities providing correspondence courses should have centres in different places for contact classes. The colleges should be used as contact points and their laboratory and library facilities used as far as possible.
- (d) Universities providing correspondence courses should have special library facilities for these courses such as multiple copies of textbooks and specially prepared books for correspondence courses. In addition, there should be a good collection of correspondence lessons prepared in other countries.
- (e) It would be desirable to organise a workshop on methodology for the preparation of instructional material.
- (f) The duration of the degree through correspondence should be the same as for the normal course.
- (g) It would be desirable that only a selected number of universities undertake to initiate these courses in the first instance.

The correspondence courses started becoming popular and attracted a large number of students from different parts of the country. Many universities expressed the desire to start the courses.

The University Grants Commission, with a view to maintaining high standards, prescribed certain guidelines for starting these correspondence courses which have been revised from time to time. The guidelines have not been followed and this has led to an unhappy situation.

Limitations which have contributed to the ineffectiveness of correspondence education in India include the following:

- (a) Most of the correspondence institutes do not have competent and adequate staff. The best teachers are not posted to work in these institutes;
- (b) In some states, more than one university started correspondence courses, thereby duplicating efforts resulting in low enrolments;
- (c) Lessons are often prepared in a hurry with no regard to quality;
- (d) Not much attention is paid to the assignments; they are not evaluated, corrected and returned to the students on time;
- (e) Most of the correspondence courses do not have 'study centres' and personal contact programmes are organised by only a few institutions;
- (f) Too much reliance is placed on printed material and the latest communication technology is hardly used;

- (g) There is considerable delay in the despatch of lessons to the students;
- (h) Bodies charged with the running of these institutions are not organised properly;
- (i) The system has the same rigidities in the courses offered as the formal system. Students offer the same courses and appear for the same examinations as the regular students;
- (j) Laboratory and library facilities are rarely provided and where they exist they are much below standard;
- (k) The institutes have no identity of their own as they work within the university structure. The latter pays perfunctory attention to the former; and
- (l) Efforts are seldom made to evaluate and check the standards of correspondence courses. Their growth and working is haphazard leaving much to be desired.

Attempts to Strengthen Distance Education

Of late, a few correspondence institutes have started establishing study centres and organising contact programmes even outside university headquarters. Similarly, some institutes arrange radio lectures on a limited scale and some have started TV programmes and distribution of cassettes. These marginal improvements in a few institutes, however, do not change the structural functions and services of correspondence courses.

Institutes of correspondence studies of some universities have also started adopting some of the important features of the Open University system. Open admission policy is one such feature. For example, in Mysore University no eligibility qualifications are stipulated (except an age restriction) for enrolling into undergraduate and postgraduate courses. By incorporating this feature into their correspondence system, the University calls the systems an 'Open University System'. The S.N.D.T. Women's University, Madras University and Andhra University are examples of Open University schemes in correspondence institutes.

The fast spread of correspondence education, the meagre student support services and lack of innovativeness and flexibility in course structure caused alarm among educational planners and correspondence educators. In the early seventies efforts were initiated to strengthen correspondence education. A need was felt for the formation of an all-India body to coordinate and serve as a central agency for the proper development of correspondence education in the country and it resulted in the formation of National Council for Correspondence Education (NCCE) in 1976.

In 1972 the University Grants Commission set up a Standing Committee on Part-time and Correspondence Courses to advise and guide it on the effective functioning of correspondence education in the country. The committee in 1973 deliberated on the issue of setting up a National Institute for Correspondence Courses, but nothing concrete resulted. The reason for inaction probably was that the government was caught with the idea of establishing an Open University. The demand for a National Institute continued till the establishment of IGNOU.

In India, the first proposal for setting up an Open University was in the early seventies. The Ministry of Education and Social Welfare, in collaboration with the Ministry of Information and Broadcasting, and the U.G.C., organised a seminar in December 1970 as part of a programme for the observance of International Education Year. Inaugurating the Seminar, Professor V.K.R.V. Rao, the then Education Minister, first mooted the idea of establishing an Open University in India and observed:

"It must cover not only the comparatively limited number of university students, but should cover the much larger number of students who drop out from school at various points, the neo-literates, and eventually all adults who desire to avail these programmes of continuing education ... The new interesting programmes of instruction, based on modern science-oriented educational technology for students of higher education studying in the Open University should be made available to this much larger body of population which remains outside the so-called University system."

As a result of these suggestions, in 1971 the Government of India appointed a Working Group with G Parthasarathi, the then Vice-Chancellor of Jawaharlal Nehru University, Delhi, to examine the feasibility of establishing an Open University in India. The Report of the Working Group was submitted in 1975 and some spade work was done to establish a National Open University.

In 1982, the Committee appointed by the University Grants Commission to enquire into the working of the central universities, under chairperson of Dr (Mrs) Madhuri R Shah, made the following observations:

"To satisfy existing thirst for knowledge as well as degrees, admission to formal courses on the basis of merit requires that opportunities for off-campus studies should be created on a large scale, for a great variety of courses of high quality. We already have a number of universities offering correspondence courses; we need to utilise and co-ordinate this expertise and infrastructure to create an effective system of learning. Mass media, such as radio and television, which are already beginning to be used in conjunction with correspondence education, and for which a greater potential is being created through the satellites, should be employed in a systematic manner to enlarge the scope and enrich the quality of distance education. We could create with available know-how in software and hardware a highly

proficient and attractive system of education for the whole country of which the present correspondence institutes could become focal points. Courses in new fields, particularly in science and some in technology could also be started, perhaps using college laboratories in off-hours and some of the best teachers could be involved in delivering lectures. Libraries of audio and video cassettes could be created to enrich both formal and non-formal education ... (The Committee) recommended that practical steps for creating a National Open University of distance education be taken up without delay."

The First Open University

The debate at the national level on Open University also stimulated thinking on the subject in various states. In Andhra Pradesh, proposals were made to start an Open University in 1978 but there was no progress. Osmania University made proposals for starting an Open Education College to strengthen distance education. The College was to have full autonomy but the degrees were to be awarded by the Osmania University. At last in 1982 the Government of Andhra Pradesh decided to establish an Open University to provide "access to higher education to the adult population of the State, for upgrading their functional capacities and improving quality of their life in context of broader social and political objectives and equalisation of educational opportunities and the emergence of a new concept of life long education". To give shape to this policy, the Government appointed a Committee and, based on the Committee's Report, established the Andhra Pradesh Open University in 1982, the first fully fledged distance education institute in India.

The Open University formally came into existence on August 26, 1982.

A National Open University

Realising its importance and immediate relevance the Government of India decided to establish a National Open University in early part of 1985. The Prime Minister, in his broadcast to the nation of January 5, 1985, spelt out the Government's Policy relating to education and announced the establishment of a National Open University. He observed "... Steps are being taken to establish an Open University to bring higher education within the easy reach of all." The National Open University named after the late Prime Minister Indira Gandhi was set up in September 1985.

The objectives of the University are "to advance and disseminate learning and knowledge by a diversity of means, including the use of any communication technology, to provide opportunities for higher education to a larger segment of population and to promote the educational well-being of the community, to encourage open university and distance education systems in the educational pattern of the country and to co-ordinate and determine standards in such systems ..."

The Act states that:

"The University shall endeavour through education, research, training and extension to play a positive role in the development of the country, and, based on the rich heritage of the country, to promote and advance the culture of the people of India and its human resources. Towards this end, it shall:

- (a) strengthen and diversify the degree, certificate and diploma courses related to the needs of employment and necessary for building the economy of the country on the basis of its natural and human resources;
- (b) provide access to higher education for large segments of the population, and in particular, the disadvantaged groups such as those living in remote and rural areas including working people, housewives; and other adults who wish to upgrade or acquire knowledge through studies in various fields;
- (c) promote acquisition of knowledge in a rapidly developing and changing society and to continually offer opportunities for upgrading knowledge, training and skills in the context of innovations, research and discovery in all fields of human endeavour;
- (d) provide an innovative system of university level education, flexible and open, in regard to methods and pace of learning, combination of courses, eligibility for enrolment, age of entry, conduct of examination and operation of the programme with a view to promote learning and encourage excellence in new fields of knowledge;
- (e) contribute to the improvement of the educational system in India by providing a non-formal channel complementary to the formal system and encouraging transfer of credits and exchange of teaching staff by making with use of texts and other software developed by the University;
- (f) provide education and training in the various arts, crafts and skills of the country, raising their quality and improving their availability to the people;
- (g) provide or arrange training of teachers required for such activities or institutions;
- (h) provide suitable post-graduate courses of study and promote research;
- (i) provide the counselling and guidance to its students; and
- (j) promote national integration and the integrated development of the human personality through its policies and programmes.

The University shall strive to fulfil the above objects by a diversity of means of distance and continuing education, and shall function in cooperation with the existing Universities and Institutions of higher learning and make full use of the latest scientific knowledge and new education technology to offer a high quality of education which matches contemporary need."

The Present State of Distance Education

At this point, it will be useful to present a summary of distance education in India. The facts are presented in Table 1.

TABLE 1 - CORRESPONDENCE INSTITUTES IN INDIA

S.No	University	Institute	Year of Establishment	Total number of students 1981/2	1982/3	1983/4	Cost per student (RS) 1981-2*
1.	University of Allahabad	Institute of Correspondence Courses & Continuing Education	1978	638	824	1,252	486
2.	Andhra Pradesh O.U. .	-	1982	-	-	6,406	530**
3.	Andhra University	School of Correspondence Courses	1972	11,851	13,998	18,737	315
4.	Annamalai University	Directorate of Correspondence Courses & Continuing Education	1979	11,594	18,388	na	275
5.	Bangalore University	Directorate of Correspondence Courses	-	na	na	na	na
6.	Bhopal University	Institute of Correspondence Courses	1975	919	na	na	389
7.	University of Bombay	Directorate of Distance Education	1971	8,189	6,603	na	179
8.	University of Calicut	Institute of Correspondence Courses & Continuing Education	-	-	-	-	-
9.	Central Institute of English & Foreign Languages	Department of Correspondence Courses	1973	717	na	-	-
10.	Cochin University of Science & Technology	School of Continuing Education	1971	-	-	-	-
11.	University of Delhi	School of Correspondence Courses	1962	6,759	9,832	13,786	853
12.	G B Pant University of Agriculture & Technology	Directorate of Extension	-	-	-	-	-
13.	Gujarat Agricultural University	Directorate of Extension Education	-	-	-	-	-
14.	Himachal Pradesh University	Directorate of Correspondence Courses	-	11,701	na	na	303
15.	Indira Gandhi National University	-	1985	-	-	-	-
16.	Jadavpur University	Adult, Continuing Education and Extension Centre	-	-	-	-	-
17.	Jamia Milia Islamia	Urdu Correspondence Course	1970	-	-	-	-
18.	University of Jammu	Institute of Correspondence Education	1976	1,258	na	na	528
19.	Jawaharlal Nehru Krishi Vishwa-Vidyalaya	Directorate of Extension	-	-	-	-	-
20.	Jawaharlal Nehru Technological University	Centre for Distance Education	1984	-	-	-	-

TABLE 1 - continued

21.	Kakatiya University	Department of Education	-					
22.	University of Kashmir	Department of Distance Education	-					
23.	University of Kerala	Institute of Correspondence Courses	1976	650	722	na	na	321
24.	Kurukshetra University	Directorate of Correspondence Courses	1976	3,842	1,795	na	na	64
25.	University of Madras	Institute of Correspondence Education	1981	2,720	na	na	na	246
26.	Madurai Kamaraj University	Institute of Correspondence Course and Continuing Education	1971	46,600	45,887	na	na	
				68,554				
27.	Meerut University	Institute of Correspondence Courses and Continuing Education	1969	543	na		39	
28.	Mohanlal Sukhadia University	College of Correspondence Studies	1979					
29.	University of Mysore	Institute of Correspondence Course	1970	15,724	14,726	na	na	400
30.	Osmania University	Institute of Correspondence Courses	1977	1,347	1,851	1,368		
31.	Punjab University	Directorate of Correspondence Courses	1971	9,148	8,575	na	na	705
32.	Patna University	Institute of Correspondence Courses	1974	1,535	1,567	na	na	370
33.	University of Poona	Distance Education Centre	1983					
34.	Punjab Agricultural University	Department of Extension Education	-					
35.	Punjab University	Directorate of Correspondence Courses	1968	4,717	2,441	na	na	634
36.	University of Rajasthan	Institute of Correspondence Studies	1968	7,046	7,767	na	na	
37.	SNDT Women's University	Department of Correspondence Courses	1979	5,309	6,087	3,677***		
38.	Sri Venkateswara	Institute of Correspondence Courses	1972	496	676	684		
39.	Tamil Nadu Agricultural University	Directorate of Extension Education	1974	616	na	378	1269	
40.	Utkal University	Directorate of Correspondence Courses	-					

* Figures based on data collected by Vijaya Mulay Project team regarding correspondence courses in Indian Universities

** For source see Table 4

*** Incomplete data

IGNOU's Future Academic Programme

At the time of preparation of the Project Report for establishing the National Open University, we commissioned a Survey to identify the academic Programmes and Courses which different sections of the community would like the Indira Gandhi National Open University to offer. The job was entrusted to the Institute of Economic and Market Research, New Delhi. The Survey covered three metropolitan towns, Delhi, Madras and Bhubaneswar. A total of 224 respondents were interviewed of whom 113 were employees representing 30 different institutions. The rest included both employees and housewives. This was intended to be a pilot study to be followed by a more comprehensive study/studies.

The respondents felt that the Indira Gandhi National Open University should offer different certificate, diploma, under-graduate and post-graduate programmes as well as research programmes. Other respondents emphasised certificate and diploma programmes.

A certificate course in computers was suggested by about 60% of our institutional respondents and 40% of household respondents. Courses in the area of management came next. In management, specific areas like business management, secretarial practice, marketing management, office management, accountancy, or export management, were suggested by our respondents. Other courses suggested include interior decoration, tailoring, and carpentry.

More or less similar courses were suggested for diploma programmes also. Diploma programmes in computers and management studies found favour with a majority. Diploma programmes in management studies include business management, marketing management, personnel management, secretarial practice, executive development programmes, organisational behaviour, and industrial management.

The responses for degree programmes, however, differed. Graduate programmes in computers, managements and arts, commerce and science were emphasised. This indicates that those people who did not have access to education for a variety of reasons in the past now would like to possess a general 'Degree' in one of the disciplines as this has its own value in the employment market as well as enhances one's social status. Certain new areas like education, defence studies, engineering studies, were also suggested by some. Household respondents suggested, apart from the formal degrees referred to above, degree programmes in nursing, hotel management, home science, music and dance.

In the postgraduate programmes, M.B.A. and M.Com. found favour with a majority. Many suggested conventional postgraduate courses. An important aspect is the slant towards administrative and management studies. Courses in organisational behaviour, public administration, office management, travel management, and marketing management. were suggested by a majority of our respondents.

The foregoing indicates that our respondents wanted Indira Gandhi National Open University to offer a variety of academic programmes leading to certificate, diploma and degree, postgraduate and research degrees. But their preference is for courses in the area of management and computer studies. Women respondents wanted courses in home science, interior decoration and child care. A few others wanted courses in nutrition, beautician and health care. But these are not their first choice.

As a part of the survey, interviews were held with key personnel of several public sector organisations to find out which programmes and courses will be beneficial to their employees and what they expect the National Open University to offer. Courses in organisational behaviour, management and computers were preferred by a majority. Each of the organisations, keeping their specific requirements in view, made marginal changes here and there. Similarly, senior officials of the Government Departments also preferred courses in computers and management and administration.

IGNOU's Role of Coordination of Distance Education

Section 4 of the Indira Gandhi National Open University Act states the objects of the University as:

"to advance and disseminate learning and knowledge by a diversity of means, including the use of any communication technology, to provide opportunities for higher education to a larger segment of the population and to promote the educational well being of the community generally, to encourage the Open University and distance education systems in the educational pattern of the country and to co-ordinate and determine the standards in such systems."

Section 5(2) of the Act further states:

"Notwithstanding anything contained in any other law for the time being in force,..., it shall be the duty of the University to take all such steps as it may deem fit for the promotion of the open university and distance education systems and for the determination of standards of teaching, evaluation and research in such systems, and for the purpose of performing this function, the University shall have such powers including the power to allocate and disburse grants to Colleges, whether admitted to its privileges or not, or to any other university or institution of higher learning, as may be specified by the Statutes."

The University, thus, is under the statutory obligation to evolve and implement measures (a) to encourage the Open University and distance education systems in the country, (b) to co-ordinate the Open University and distance education systems, and (c) to determine standards of teaching, evaluation and research in the Open University and distance education systems. To achieve the above objects, the University is empowered to take the necessary measures.

Before initiating any measures to fulfil its objects, the University initially desired to know all the problems of the open/distance education institutions in the country. In January 1986, it convened a meeting of heads of all such institutions (one Open University and thirty one Institutes of Correspondence Courses of Universities). The meeting which was attended by twenty three representatives of University/Institutes discussed and debated in detail several issues including the nature and scope of relationship between IGNOU and the State Open Universities, IGNOU and Correspondence Institutes, and, finally, the State Open Universities and Correspondence Institutes.

The following problems and their possible solutions were identified:

1. Status of the institutes

Most of the institutes were treated as a constituent college of the university. However, some of the progressive universities have given them the status of a university teaching department. A couple of universities have gone a step further and created a fully-fledged faculty of non-formal education or distance education.

It is desirable to have a faculty of distance education in the university offering correspondence courses. Faculty status besides enhancing the prestige of the institute, would pave the way for instituting, conducting and guiding research on various aspects of distance education. The institutions of Correspondence Courses need to be designated as departments of distance education and treated as fully-fledged multi-faculty teaching departments of the universities.

2. Status of the teachers

In several of the universities the teachers in correspondence education are looked down on and are discriminated against in many ways. In some cases they have not been given designations equivalent to teachers in the university teaching departments.

Some institutes do not have their own faculty at all, and some have very limited faculty. Of course a few institutes are over-staffed. Teachers who are deputed/loaned from the teaching departments to the institutes for specific periods do not have commitment and involvement in the system. No institute with uncommitted teachers can function well.

The designations of teachers in the institutes, their qualifications and selection procedure should be similar to those in the teaching departments; they should have representation on university bodies as university teachers and be associated in guiding research if they are qualified to do so. They should have the same promotion opportunities as teachers in the teaching departments have.

3. Lack of proper training to teachers in the distance education methodology

Most of the institutes experience problems because the teachers have not received any proper training in this new system. They have been just put on the job and left to learn from experience. Unless a teacher develops commitment to the distance education system, he cannot contribute much. Seminars and workshops occasionally organised by the U.G.C., N.C.E.R.T. and the universities help to some extent, but participation is limited and the majority of teachers do not get a chance to participate in training programmes.

There is a need for a training programme for teachers in the institutes of correspondence courses and state open universities. The Diploma Course in Distance Education designed by IGNOU might fulfil this need.

4. Lack of rational planning for determining the strength of academic and administrative staff

Lack of planning has resulted in overstaffing in some institutes and understaffing in others.

Although U.G.C. has laid down norms for core staff both for the undergraduate and postgraduate courses, there is need to look into this matter, and evolve proper guidelines for determining the strength of academic as well as the administrative staff.

5. Duplication of courses

There is large scale duplication of correspondence courses in some regions and even within the state in a few cases. This adversely affected enrolments in some institutes leading to starvation for funds.

Duplication of courses within the same state needs to be avoided. Even within the region also it needs to be avoided as far as possible. In fact, duplication of institutes within the same region/state should be discouraged.

6. Finances

Many universities regard correspondence courses institutes as revenue earning departments and channel these savings to cover deficits in other departments or divert the funds to the general university funds. The State governments expect correspondence course institutes to be self-supporting and are reluctant to provide them with grants. The reality is that with revised pay scales teachers and administrative staff, and rising costs of paper and printing, most of the institutes go into deficit. Lack of funds inhibits the growth and development of correspondence courses institutes and affects their efficiency.

7. Accommodation problems

Some institutes have good buildings, but some of them do not have independent accommodation and are hard put to it. This affects the efficiency and status of the institutes.

Careful planning and liberal building grants are required to improve the situation. The institutes must have proper accommodation for their teachers and office staff, and for library, classrooms, storage, despatch and the various sections in the institutes.

8. Private appearance

Some universities, even though they have instituted correspondence courses, still allow private appearance at the University examinations. This adversely affects enrolment for correspondence courses and creates financial problems for the institutes.

In order to ensure academic standards and financial viability, universities which offer correspondence courses should abolish the practice of private appearance at the university examinations.

9. Media and student support services

Except for about half a dozen institutes, institutes do not provide any radio support for the correspondence courses.

Most institutes do not have any study centres, and those which exist are just apologies for study centres. Lack of financial resources and initiative are the main reasons for this state of affairs.

The Government, universities and IGNOU must provide adequate financial assistance to the correspondence courses institutes to set up proper study centres at different places with well organised library and media support, counselling and tutorial facilities.

10. Innovative, interdisciplinary, job-oriented courses

Most of the institutes are a sort of extension wings of the universities offering their traditional courses. Even if they propose innovative courses, they are not approved by the university bodies. This prevents the institutes from experimenting with new ideas and from exploiting the potential of making education relevant to the needs of society. This problem could be solved if the universities established faculties of non-formal or distance education, and constituted special expert committees for starting innovative courses.

11. Course material

The production of course material is most crucial to the success of distance education. There is need to enhance remuneration for course writers and to involve experienced teachers in the preparation of course material preferably on the team basis. Strict quality control needs to be exercised on designing and printing.

12. Evaluation of response sheets

Very few institutes insist on timely compulsory submission of student response sheet assignments (SRAs). evaluation of SRAs is also not done properly. Casual and erratic marking is done. This practice defeats the very purpose of assignments. Students must be required to submit a fixed number of SRAs in every subject, evenly spread over the academic session, and obtain at least 35% marks on the average. It would be a good incentive if the score of evaluation of the SRAs is added to the students' score in the examination in the ratio 20:80, 25:75 or 30:70. There must be effective monitoring of the evaluation of SRAs to eliminate or at least reduce erratic or careless marking. Teachers must offer detailed comments and suggestions on the students' performance.

13. Personal contact programmes

Very few institutes insist on compulsory attendance at the personal contact programmes, and some institutes organise these programmes only at their headquarters. Attendance at the PCPs should be made compulsory. Lectures by specialists should also be arranged at the PCPs.

14. Administrative problems

Most of the institutes do not enjoy administrative and financial autonomy. This adversely affects their functioning and efficiency. Institutes need reasonable autonomy. They should have their own bank accounts for the receipt of income from students' fees. The directors should be empowered to incur expenditure on all items provided for in the budget without the need to seek periodical sanctions from the Vice Chancellor or the Registrar. The decentralisation of powers would lead to better functioning and efficiency.

The above account of the first meeting of heads of correspondence institutes served as a basis for the University for planning methods and procedures for playing the role of co-ordinator of distance higher education in the country.

In the light of the problems posed and possible solution suggested at the meeting, the University convened a meeting of the Vice-Chancellors and Officers on Special Duty of Open Universities in May 1986. The Vice-Chancellor of APOU and Special Officers of proposed Open Universities of Maharashtra and Kerala attended the meeting. The meeting mainly discussed the issues of the pattern of academic programmes, linkages of courses, standards of instructional materials, basic components of an open university system, and the relationship between IGNOU and State Open Universities.

A broad consensus was agreed as follows:

- (1) It would be advantageous if there is a common framework of academic programmes in the Open University system particularly at

the undergraduate level. The undergraduate programme can be a three year course with the following components:

- (a) foundation courses in the first year
- (b) core courses in the second year
- (c) applied courses in the third year

A mix of the core and applied courses could be offered in the second year depending upon the nature of the course and the subjects.

- (2) Unless course material for six months study is readily available, the registration of students should not start.
- (3) The credit system would be adopted in all Open Universities and the details of units for each credit and the number of credits required for each course may be worked out.
- (4) The nomenclature of degrees would be B.A., B.Sc., B.Com.
- (5) Students who stop with the undergraduate programme would be free to take any combination of subjects. For those desirous of proceeding to a Master's course, a certain minimum number of credit courses at the undergraduate level is to be specified as the condition for admission to a Master's course.
- (6) The foundation course would include two languages. In IGNOU study of English and Hindi will be prescribed, in the other Open Universities any two languages will be suggested.
- (7) Attendance at the Contact Programmes for the students would be necessary and certain credits may be awarded for attendance.
- (8) It should be possible for the students of one Open University to specialise in a course offered by another Open University, e.g., a student registered with IGNOU wanting to do a course in South Indian Music may take this course from, say, Tamil Nadu Open University where Karnatic Music is taught widely and for which the credit awarded by the latter University would count. It should be possible for a student registered with an Open University in the South to do a course in Hindustani Music from the Open University, say, in Chandigarh or elsewhere in the North, the credit awarded for this course being counted. This principle could apply to other courses as well. Linkage of courses and the transfer of credits in the Open University system should be established, as this would be helpful to the students.
- (9) It is absolutely essential to maintain quality of the course material, as the very credibility of the Open University system depended on the quality of its material. It is necessary to evolve a mechanism by which quality control of the material is ensured. An external quality control mechanism would ensure quality of the material better than an internal system. Essentially quality control is an on-going process and should be

internal, while external quality control could only be occasional and done easily at the end.

- (10) A separate board under the IGNOU statutes could be thought of for the purpose of monitoring the quality of standards of the Open University system.
- (11) In order to distinguish the Open University from correspondence courses in the formal University system, it is essential to insist on certain basic components for an Open University system. The following essential components must be present in a Open University:
 - (a) course texts
 - (b) radio and TV broadcasting
 - (c) audio-visual aids
 - (d) computerisation of services
 - (e) study centres with audio-visual aids and library facilities
 - (f) contact programmes
- (12) A draft note on the minimum physical and other facilities required for an Open University's efficient functioning would be prepared by the IGNOU and circulated to the other Open Universities for their consideration and approval.
- (13) The headquarters of an Open University should be located in an area, where communication and printing facilities are readily available, and where sufficient land is available.
- (14) The relationship between IGNOU and the State Open Universities could be governed by any of the following three models:
 - (a) A model, in which each University would be free to act in a manner it thought fit,
 - (b) A model in which there would be programmes by the IGNOU and the State Open Universities,
 - (c) A model, where there would be greater interaction between the IGNOU and the State Open Universities - like IGNOU preparing course material and State Open Universities adopting changes necessary to suit their local/regional requirements.

The relationship is voluntary and the State Open Universities would be free to choose model/s suited to them. However, this would not absolve the IGNOU of its responsibilities of maintenance of standards as provided in its Act.

To discuss further the role of co-ordinating the distance education and evolve some guidelines for assistance to open universities and correspondence institutes of universities, the University convened

another meeting of distance education planners and administrators and specialists in education.

The Chinese experience of distance education particularly Chinese Central and Provincial Radio and Television Universities was discussed while exploring the alternative models for adoption in the country.

The Committee felt that certain guidelines can be prescribed which should be followed by all State Governments, whenever they take decision to start Open Universities and assistance should be provided to only those which would set up as per prescribed norms. The Committee suggested the following guidelines:

- (1) Assistance by the National Open University will be provided for improving the printed material and audio material of the Institutes of Correspondence Courses/State Open Universities, if such Universities are eligible for the UGC under Section 12B of the University Grants Commission Act. The assistance shall also cover intensive training programmes in distance education and guidance for course writing.
- (2) State Open Universities can be started with a great deal of caution. Once the State Open Universities are established the existing Institutes of Correspondence Courses in the State should be discontinued. This should be done selectively as certain institutes of correspondence courses are good resources. The possibility of strengthening correspondence institutes and converting them as State Open Universities should be considered.
- (3) Distance education is cost effective only when the enrolment is big.
- (4) The courses run by the Institutes of Correspondence Courses if necessary should be evaluated. Evaluation of course material is an integral part of distance education system and should be done at periodic intervals.
- (5) The Regional Centres of the National Open University should, in addition to administrative co-ordination, also provide academic inputs to the concerned State Governments in its efforts to spread distance education.
- (6) The system of private appearance in existing universities would be continued for the present. As the Open University system spreads and is found to be effective, the numbers of private candidates would be automatically reduced as more and more candidates would join the open university system.
- (7) The assistance by the National Open University shall not cover either deemed universities or other central universities.
- (8) The problems of distance education in the country should be studied by a group of experts and recommend measures for its improvement.

- (9) Assistance by the National Open University would be different for each of the following categories:
- (a) Where the State Governments do not want a State Open University and request the National Open University to take care of requirements.
 - (b) Where the State Governments intend to start Open Universities.
 - (c) When the States have already Open Universities.
- (10) To make effective use of resources, one institution either the Institute of Correspondence Courses or State Open University could be supported.

The Committee suggested that the above guidelines be communicated to the appropriate authorities for evolving a policy framework for the operation of the National Open University, the State Open Universities and the Institutes of Correspondence Courses in a coordinated manner.

It is difficult to visualise how the coordinating role assigned to IGNOU will be successfully played. IGNOU is at the apex of highly disjointed pyramid. Its success greatly depends on the willing co-operation of present and future State Open Universities, conventional universities and State Governments. There is a possibility of State Open Universities seeing in IGNOU a threat to their strength. Correspondence Institutions and their host universities, particularly those which are income spinners, might hesitate to extend full co-operation to collaboration and co-ordination with IGNOU. The already strained relations between the Union and the States may acquire a new dimension of tension with the efforts of IGNOU to co-ordinate the distance education plans and operations in the country. As Mr Rajiv Gandhi, the Prime Minister, put it "Perhaps the most difficult question to tackle is that of the Centre-State relations with regard to education. It is necessary to look into this aspect further to see how education is to be developed and how Central funds and State funds can be best utilised for a better education."

The forums of periodical meetings of Chief Ministers, Education Ministers, Secretaries of Education, Central Advisory Board of Education, Association of Indian Universities, and Conferences of Vice-Chancellors need to be utilised for developing a commitment for a well co-ordinated system of distance education in the country. The desirability of a balanced, integrated and high quality system of distance education as an answer to some of the ills of the present day formal system of education needs to be recognised and furthered by educational planners and administrators. It is hoped that IGNOU will provide the necessary leadership in this direction.

B. DISTANCE EDUCATION AT SCHOOL LEVEL

The idea to start correspondence education at school level gained acceptance and recognition at the Conference of Boards of Secondary

Education in 1964. The primary consideration that led to the decision to extend distance education to secondary stage was to improve the level and quality of education attained by candidates who used to take secondary-level examinations as private candidates. Among the Boards of Secondary Education, Madhya Pradesh Board was the first to start correspondence courses in 1965. The Boards of Secondary Education of Rajasthan, Orissa and Uttar Pradesh later followed the line. In the capital city of India a Directorate of Correspondence Education (Patrachar Vidyalaya) was also set up in 1968, mainly to provide opportunities of secondary education to drop-outs, housewives or in-service personnel residing in any part of the country.

Distance education at the secondary stage gained strength after the establishment of the Open School by the Central Board of Secondary Education in July 1969. The Open School opened an alternative channel to formal schooling. The Open School offers (a) secondary school level course (classes ix and x), and (b) bridge/preparatory courses (classes vi to viii). The Open School aims at expanding and extending secondary education to working adults, housewives, school drop-outs. The present strength of students getting education through the Open School is over 10,000. The School has taken a decision this year to offer courses at Intermediate stage (+2 stage in 10+2+3 years of schooling). This would strengthen the correspondence education base at school stage and also link the secondary level with the higher education level of correspondence education.

Though distance education at school stage began nearly two decades ago, its growth has not been promising. The system has failed to attract a large number of students. The total enrolment at secondary and senior secondary stages in the country is about 56,000 which is just about 0.3% of total enrolment at this stage.

Research studies revealed several organisational weaknesses and academic deficiencies of the system. The system needs to be restructured and reoriented to enable it to fulfil the goals of secondary stage distance and further education. The establishment of the Indira Gandhi National Open University which has a statutory obligation to coordinate and maintain standards in the distance education system, it is hoped, would link different levels and sectors of distance education in the country.

C. DISTANCE EDUCATION IN AGRICULTURE

Green Revolution has brought in several significant changes in agriculture. To sustain the tempo of development, to reinforce the modernisation process and to sensitize the farmers towards the benefits of the developments in science and technology, Agricultural Universities in India initiated distance education programmes as a part of their extension work. Since the mid 1960s some Agricultural Universities have started correspondence courses with the following objectives:

- (a) to carry new knowledge and information about different facts of agriculture to farmers at their doorstep;

- (b) to educate farmers with the latest technology and skill for increased production of food and fruits;
- (c) to educate youths engaged in farming regarding scientific farm operations for increased agricultural production;
- (d) to improve socio-economic conditions of farmers as a result of higher agricultural production;
- (e) to provide continuing useful educational opportunities to rural school-drop-outs and neo-literates engaged in agriculture;
- (f) to build a network of key communicators through whom the message of new and scientific agriculture could be spread far and wide specially in the area of the university.

Current courses cover a wide range of agricultural topics.

D. EDUCATIONAL BROADCASTING

The tradition of educational broadcasting in India is not very old. Today, educational broadcasting is viewed following lines suggested by the National Workshop on Educational Broadcasting under Unesco's Asian Programme of Educational Innovation for Development held at New Delhi in December 1980:

- (a) as a means of motivation by informing and encouraging people to participate in national development;
- (b) as a major component of the non-formal education system by providing an alternative approach to the education of out of school children, youth and adults;
- (c) as a direct instructional medium dispensing with the need for an intermediary;
- (d) as an enrichment of the formal system of education where it can fill instruction gaps, up-to-date knowledge and bring in new learning experiences;
- (e) as a training component for teachers (instructors) and supervisors;
- (f) as a means of imparting vocational (agricultural and industrial) and professional (medical and engineering) skills.

Radio

Even before All India Radio came into existence there were occasional broadcasts for schools from Bombay and Calcutta. It was only in 1937 that organised school broadcasting started in Calcutta at the request of the University of Calcutta and the Department of Education of Bengal. The broadcasts were bi-weekly and for half an hour at a time.

Later the programmes were extended to schools in Delhi, Madras and Bombay. It was laid down as a principle "that educational broadcasts should not attempt to replace the teacher but to supplement his work."

Akashvani (All India Radio) stations broadcast educational programmes in 16 languages. The emphasis is on primary and informal education to effect universalisation of primary education and support national educational projects. Akashvani has educational programme production units at 44 stations in its network of 88 stations. The programmes produced by these units for primary and secondary school students are broadcast by 74 stations. The primary school broadcasts are for general enrichment and are broadcast for a duration of 15-20 minutes on 3 to 5 school days in a week. The broadcasts for secondary school students are syllabus oriented and are put on air for a duration of 15 to 20 minutes on all school days of the week. The programme schedules for school broadcasts are prepared with the cooperation of educational authorities and State Institutions of Education and are approved by the Consultative Panel attached to each station. Besides, Adult Education Programmes are broadcast by 14 stations by way of support to National Adult Education Programme (NAEP). On an average, the number of such programmes broadcast per week is 3 to 4 and the duration of each is about 15 minutes. The time available for educational broadcasts is obviously inadequate, and the government is aware of this shortcoming. To overcome this weakness, the Department of Education, Government of India, has projected that 4 hours of radio time per day would be required for each State for school broadcasts, and 40 minutes per day for adult education programmes from 1987 onwards.

Teacher training through radio has achieved considerable success in the States of Kerala, Gujarat and Assam. With the introduction of an enriched syllabus, there arose a need in Kerala for training about 120,000 primary school teachers, which would have taken a long time but for the introduction in 1975 of radio-cum-correspondence course for in-service training, as a joint effort of AIR and the Kerala State Government. The State Institute of Education in Assam in collaboration with AIR has been running a radio-cum-correspondence course for science teachers ever since 1978-79. The aim was to train all science teachers in a phased manner. To improve the teaching of English in primary schools, the H M Patel Institute of English in collaboration with All-India Radio, Ahmedabad embarked upon a Kerala type radio-cum-correspondence course. Similarly the EB Units at Madras and Tiruchi support a training programme of Tamil teachers by weekly broadcasts on the lines of Kerala. Nagpur and the Pune stations support a broadcast training course for two months of the year. Teacher training through radio has become popular as it saves a lot of movement of teachers and expenditure.

AIR Delhi has been providing broadcast support to the undergraduate correspondence courses of Delhi University since 1966. These broadcasts, known as the University of the Air, are in English and Hindi for a total duration of 40 minutes. From 1977 onwards the stations in Tamilnadu started giving support to the correspondence course of the Madurai University. The broadcasts, which are funded by

the University, are recorded at the studios of AIR Tiruchi. The programmes are distributed to other stations through tapes, though relays over the air/ telephone line also takes place. The broadcasts are now put out simultaneously at 10.30 p.m. from all the stations in Tamilnadu. This is the first time a total state-wide radio support has been given to a correspondence course, thus bringing the course to the homes of practically everyone who wishes to avail of it. The Jullundur station also supports the correspondence course of the Punjab and the Punjabi Universities. These broadcasts are daily for 20 minutes except for the summer holidays. AIR has played a significant part in bringing the new technology in agriculture to the door of the farmer by giving support to various farmer's training and functional literacy programmes of the Ministries of Agriculture and Education. In fact, the Farm and Home Units of Akashvani were started in 1966 to support the Intensive Agricultural District Programme and the coming of new 'wonder' seeds, the high yielding varieties. One such variety - ADT27 - came to be known to the farmers of Tanjaur as 'Radio Rice'.

In 1965, the Ministry of Information and Broadcasting, in consultation with Ministry of Agriculture and Education started Farm and Home Units at 10 stations, Jullundur, Lucknow, Patna, Cuttack, Raipur, Pune, Hyderabad, Bangalore, Tiruchi and Delhi. The objective was to provide timely and problem-oriented technical information on agriculture, horticulture, animal husbandry, use of inputs, farm and home management, family health and nutrition to farmers of small homogenous areas with similar agro-economic conditions. There are now 71 Farm and Home Units in the country. Each unit is headed by a Farm Radio Officer, who is a graduate in Agriculture and trained in extension methods. He is assisted by one or two Farm Radio Reporters and a scriptwriter. Each unit is provided with ultra portable tape-recorders and a vehicle. The total staff of Farm and Home Unit of AIR is two hundred and forty.

Farm and Home Units broadcast one to one and a half hours programme in all three transmissions daily.

A recent innovation is farm schools on the air, in which intensive training on a specific agricultural or allied subject is broadcast, and after completion of a course, examinations are held and certificates and prizes given to farmers. This programme was enthusiastically received by farm women and farmers, thousands of whom enrolled at different stations.

Expert committees have given various recommendations for improving rural/farm and home broadcasts. Their suggestions are extending the duration to two hours in the evening and one hour each in the morning and afternoon; more coverage to rural news; more field-based programmes; training programme officers of All India Radio, block development officers, village level workers and experts; greater coverage of programmes for Harijans, women labourers and landless labourers; and maintenance and repair of community radio sets.

In view of the rapidly increasing importance of farm radio as a means of communicating new technologies and timely strategies to farmers all over the country, various steps have been taken by the Ministry of Agriculture and an action plan has been formulated for improving media support to agriculture.

On October 2, 1978 the National Adult Education Project began on a massive scale. Backed by the Government of India, it aimed to remove illiteracy from the country. The AIR also has committed itself to supporting the project with suitable programmes for publicity, motivation and training of instructors/helpers. This service is now being provided by 14 stations of the country. Since learning directly from the teacher is minimal and there is more emphasis on learning through various mass media, educational broadcasts are expected to play an important role in the non-formal system.

Television

Television has been used for educational purposes right from its introduction in 1959, but major steps were taken in the 1970s. Following the success of the Satellite Instructional Television Experiment (SITE), 1975-76, the Government of India initiated and implemented a multi-purpose Indian National Satellite (INSAT) programme. The main objectives of this have been:

- (a) to provide nation-wide direct TV broadcasting to rural communities in the field of education, social advancement, health and family welfare, rural development, etc., and
- (b) to use INSAT for relay of television programmes by a large number of Doordarshan Kendras which have facilities for transmission only.

The INSAT-based TV service produces educational programmes for primary school children as well as area-specific programmes for rural viewers in selected three-district clusters of Andhra Pradesh, Bihar, Gujarat, Maharashtra, Orissa and Uttar Pradesh. The educational TV programmes in Hindi for Uttar Pradesh and Bihar are relayed by all transmitters in these States as well as the transmitters in Madhya Pradesh, Rajasthan, Haryana and Himachal Pradesh.

To produce Educational Television (ETV) programmes, the Government of India has set up a Central Institute of Educational Technology (CIET) at the Central level and also taken steps for establishing State Institutes of Educational Technology (SIETs) in the six INSAT States for production of ETV programmes. At present, ETV programmes are being produced by CIET and Doordarshan on a 50:50 basis. CIET, in fact, produces ETV programmes in Hindi and English and has them dubbed in the respective regional languages, Telugu, Oriya and Marathi. ETV programmes in Gujarati are produced by SIET, Ahmedabad, with the help of the Space Applications Centre (SAC), Ahmedabad. Doordarshan produces its share of ETV programmes in the respective regional languages.

ETV programmes are for general enrichment, that is, they are not school curriculum-based, though they are addressed to school children in the age groups of 5-8 years and 9-11 years. The duration of ETV programmes in each language is 45 minutes and they are telecast for five days a week, followed by a programme for teachers on the sixth day. It is surprising that the Open School though set up in 1979 does not have a provision to put on air its programmes.

Originally, it was envisaged that the ETV programmes under the INSAT scheme would be available only in the selected 3-district clusters. At present, however, they are broadcast from Delhi via INSAT-1B and relayed by all TV relay transmitters in the six INSAT States. One of the two S-band TV transponders (S-2) of INSAT-1B is utilised for this purpose during 09.00 - 12.45 hours every day in what is known as the "time-sharing" mode. Moreover, the ETV programmes in Hindi (meant for the 3-district clusters of Uttar Pradesh and Bihar) are also relayed by all TV relay transmitters in the other Hindi-speaking States of Madhya Pradesh, Rajasthan, Haryana and Himachal Pradesh.

Present and future developments

Educational technology can play a vital role in increasing the professional competence, capability and communication skills of the teacher. In the present context of non-formal education, educational technology will be very useful in the programmes of adult and continuing education and extension and correspondence courses as also in the restructuring of courses of study at the university stage. In view of this, the University Grants Commission gives importance to the introduction of mass communication and educational technology in the university system on a priority basis. Accordingly, during the Sixth Plan period, the Commission assisted the universities on a selective basis with mass communication and education technology programmes. The Commission constituted a Working Group to advise on various matters connected with the setting up of centres of mass communication and educational technology in Indian universities after it was made known that it would be possible to ensure transmission time of one hour every day in the afternoon for programmes of higher education once INSAT became operational. On the recommendations of the working group a Task Force was appointed in August 1982 to prepare a plan of action. The recommendations of the Task Force and the Working group were accepted in July 1983 and a plan of action was initiated.

The satellite can be used with advantage for educational programmes, among many other purposes. In principle, everyone desirous of receiving an educational programme can do so through community viewing. With this facility, the whole country can be unified by some common educational thrusts and at the same time each region can be served according to its needs.

There are exciting possibilities for using the satellite for class room situations, seminars or tutorial sessions, conducting vocational and technical courses requiring a great deal of visuals, and running programmes for teachers' further education without their having to

leave their institutions. These programmes and facilities could form the core of a university of distance education.

The Commission, as an agency concerned with maintenance of quality and standards, has taken the initiative by providing standard equipment in six selected centres, namely, Mass Communication Research Centre, Jamia Millia Islamia, New Delhi, Educational Media Research Centres (EMRCs) at Poona University, Gujarat University and CIEFL, Hyderabad and Audio Visual Research Centres (AVRCs) at Osmania and Roorkee Universities. The Commission also agreed to provide assistance to Anna University, Madras and Jodhpur University, Jodhpur during the 7th Plan period for setting up of Audio Visual Research Centre. A Central Programme Committee has been set up to advise on the scope, nature and schedule of the software. It has been decided to produce what are called enrichment programmes at the undergraduate level. Topics in different disciplines are being chosen so that the largest number of students, and indeed any educated person, may benefit. Some topics will relate to national development and national concerns such as agricultural or industrial visions, achievements, shortcomings, future perspectives, national integration, secularism and socialism. These subjects will receive scholarly attention and will help to give breadth of knowledge and awareness to the viewers.

There is provision for special programmes for teachers in higher education to enable them to handle their class and examination work better, to give them up-to-date knowledge and particularly to make them familiar with the educational goals of their professions. For this purpose, a committee on higher educational TV programmes in teacher education has been constituted. Efforts are being made to produce some TV programmes in teacher education also.

The University Grants Commission has set up a mass communication unit in the UGC office for implementation of the programme of development of mass communication system and programmes in the universities and to co-ordinate the activities of the Educational Media Research Centres and Audio-Visual Research Centres. This mass communication unit while co-ordinating the functioning of the EMRCs and AVRCs is looking into the administrative aspects of funding the Media Centres.

Since the programmes to be produced by the university sector will only be small in number initially, it is desirable to select suitable material from that which is either commercially available or available on loan from universities or other institutions in India or abroad. For this purpose a UGC INSAT project unit has been set up in Jamia Millia Islamia to examine available video-tapes, audio-tapes and films to determine their suitability for being televised through INSAT-1B.

The academics in universities and colleges who are to be involved in producing suitable programmes have little acquaintance with the TV or radio medium. The Educational Media Research Centres have organised workshops to expose them to programmes and equipment, familiarise them with broadcasting, and motivate them to experiment.

A Standing Committee on Electronic Media/Mass Communication has been constituted to advise on programmes and mass media for distance education, classroom enrichment and continuing education.

The telecasts of the University Grants Commission programmes in higher education, entitled "Country-wide classroom", began on 15th August, 1984 on an experimental mode. Colleges which are within the transmission range of the Doordarshan Kendras have been asked to buy colour TV sets with part assistance from the University Grants Commission. The response and reaction from the audience has been overwhelming. The programme is being monitored and evaluated.

Non-formal adult education programmes, for general enrichment, are telecast by all programme-producing Doordarshan Kendras, as a part of their regular programme service. The duration and frequency of these programmes are, however, not fixed and these programmes can be viewed only within the coverage zone of the respective TV transmitters. The Directorate of Adult Education has also prepared some programmes.

Distance education in its various forms and stages is now more than 20 years old in our country. Yet the available technology has not been harnessed to support this system amply. It is only recently that it has begun to be used to unite broadcasting and distance education.

As indicated earlier radio programmes are broadcast from stations at Delhi, Jullundur and all stations in Tamil Nadu, to provide radio support to correspondence courses offered by some Universities. The duration of these programmes ranges between 15 to 60 minutes and the frequency from 5 to 7 days a week. Such programmes are broadcast from Hyderabad-B station to provide radio support to the courses offered by A.P. Open University. The duration of each of these broadcasts is 30 minutes, five days a week. As far as the use of TV is concerned, the A.P. Open University has not so far been allowed time on Doordarshan so it depends mainly on video cassettes. The University had produced 836 radio programmes, 145 audio programmes and 75 video programmes by the middle of 1986.

The Indira Gandhi National Open University needs large scale support from Akashvani and Doordarshan for broadcasting its programmes which constitute an important component of the University's multi-media instructional system. The University has already started preparations for producing audio-video programmes and also has already approached the Government of India for the following requirements of radio and TV time on national radio channel and national network respectively:

Radio time:

- 5 hrs 20 mts/week during 1986
- 11 hrs 20 mts/week during 1987
- 17 hrs 20 mts/week during 1988 (up to August 1988)
- 25 hrs 20 mts/week during 1988-89 (Sep. '88 - Dec. '89)
- 31 hrs 20 mts/week during 1990

TV time:

- 2 hrs 40 mts/week during 1986
- 5 hrs 40 mts/week during 1987
- 8 hrs 40 mts/week during 1988 (up to August 1988)
- 12 hrs 40 mts/week during 1988-89 (Sep. '88 - Dec. '89)
- 15 hrs 40 mts/week during 1990

The Government of India is sensitive to the needs of Open University and is expected to allocate adequate time for broadcasting the University's radio and TV programmes. The Government of India has increased the outlay of the Ministry of Information and Broadcasting in the current year from Rupees 1,100,000,000 and Rupees 2,420,000,000 - an increase of 120% for "enlarging the broadcasting infrastructure" for educational purposes.

Radio-audio-video materials for distance education are limited both in terms of numbers and use. This is partly due to the paucity of resources, shortage of technical/media personnel, rigidity of the formal system of education to which distance education has been tied and partly because of the lack of appropriate policy inputs. The present political will and the concern to promote distance education with the help of mass communications and educational technology may lay a strong foundation for the spread of Open and distance education in the country.

III. TRENDS AND GAPS IN DISTANCE EDUCATION

Private
education/training/
coaching
institutes

Educational
broadcasts

Formal
universities

DISTANCE
EDUCATIONAL
STRUCTURE

Professional
education/training
institutes

Open Universities

Secondary
education
institutes

DISTANCE EDUCATIONAL STRUCTURE

Private education/ training/coaching institutes	Formal Universities	Autonomous Open Universities	Independent Secondary Education institutes	Professional training institutes recognised by Government	Educational broadcasts
- The British Institutes	- Correspondence Institutes of Conventional Universities	- Indira Gandhi National Open University	- Open School	- Association of Indian Universities	- AIR Farm schools
- Indian Correspondence Institute	- Directorates of Extension of Agricultural Universities	- Andhra Pradesh Open University	- Institute of Correspondence Education, Allahabad	- All India Management Association	- AIR ETV programme - AIR STV programmes
- Agrawals					
- Brilliant Tutorials	- Distance Education Centres of Technological Universities		- Institute of Correspondence Education, Delhi	- Computer Society of India	- University Grants Commission TV broadcasts
- International Institute of Management Studies			- Correspondence Divisions of Boards of Secondary Education		
- Indian Management Development Institute			- Board of Secondary Education, Bhopal		
- International Institute of Management Science			- Board of Secondary Education, Ajmer		
			- Board of Secondary Education, Cuttack		

There are large regional imbalances in the development of distance education:

Four major states in India as shown below have no strong correspondence institutes.

<u>State</u>	<u>Population</u>	<u>Students</u> <u>(1982-83)</u>
Bihar	69,915,000	1,567
Madhya Pradesh	52,179,000	1,925
Uttar Pradesh	110,862,000	1,367
Maharashtra	62,784,000	12,690
	295,740,000 out of	17,549 out of
	685,185,000	159,712

Distance education by and large provides general education such as courses leading to:

BA, BAL, B.Com., B.Ed.
BGL, B.Sc., LL.B, MA,
M.Com., M.Ed., M.Sc.

Distance Education in higher level professional subjects/areas is limited. Generally the courses offered are:

- (i) M.B.A. in limited number of institutions
- (ii) B.Tech/B.E. in one institute

Distance Education in Vocational Subjects/areas is limited to Diploma and Certificate courses such as:

- (i) Diploma courses in bookkeeping, computer, journalism, marketing by a few Correspondence Education Institutes.
- (ii) Certificate Courses in computer, journalism, medical laboratory technology, by a few correspondence education institutes.

Enrolment in Distance Education Institutes is low and uneven:

- (i) Less than 5% of total enrolment in higher education. In 1982-83 out of a total enrolment of 3,296,698 only 159,712 were in correspondence stream.
- (ii) Negligible percentage of students in secondary levels.

Enrolment in independent/autonomous distance education institutes is increasing fast.

(i) A.P. Open University enrolment is as follows:

1984-85 - 11,244
1985-86 - 15,702
1986-87 - 19,271

(ii) IGNOU is getting a large number of requests for application forms for its first two courses Diploma in Management and Diploma in Distance Education.

Fees for Distance Education are more than for Formal Education.

Formal institutes charge less than Rs.200 per year in an undergraduate programme whereas correspondence institutes charge over Rs.400/-. For diploma programmes in professional subjects the fee is very high.

Distance Education Institutions are mostly single media based and not multi-media based:

- (i) Almost all Correspondence Institutes of general universities have a single medium instructional system
- (ii) Radio Broadcasting is used in a limited way by 3 or 4 Institutes
- (iii) Television Broadcasting is almost nil at higher levels of instruction
- (iv) Radio broadcasting is limited in school level instruction
- (v) The Open Schools' instruction system lacks TV/radio Broadcasting Components

Student support services are very weak. There are

- (i) not many regional study centres
- (ii) limited tutoring/counselling
- (iii) inadequate library and other facilities

The evaluation system is traditional and imperfect:

- (i) mostly based on annual examination similar to that of conventional institutes
- (ii) absence of continuing assessment system

Planning and Management of DE institutes are to a great extent unscientific and do not follow any principles of sound educational administration:

- (i) Courses are started without any needs assessment

(ii) Organisation structures are built in an ad hoc way.

Some Distance Education Institutes are treated as money earning agencies. For example the Institute of Correspondence Education, Madras University, contributes considerable share of its receipts to the University Fund. The receipts in the last five years are shown below:

1981-82 - Rs.	7,975,113
1982-83 - Rs.	7,725,073
1983-84 - Rs.	14,203,000
1984-85 - Rs.	16,927,824
1985-86 - Rs.	34,848,940

The Institute has to provide 20% of its receipts to the General Fund of the University every year.

Distance Education Institutes lack resources. Correspondence Institutes get limited grants from UGC and practically nothing from their Universities or State Governments. Some Institutes have become non-viable.

Co-ordination among various sectors and institution of distance education is lacking. There is no co-ordination among State Open Universities, Correspondence Institutes, Open Schools, Agricultural Universities, Adult Education Directorates, etc. Each institute runs its programmes in its own way. No attempt is made to co-ordinate education at primary, secondary, higher and non-formal levels.

IV. COOPERATION IN DISTANCE EDUCATION*

There has been little experience of cooperation in distance education in India at any level. This section describes this experience, and goes on to cover needs and possibilities for future cooperation at some length.

1.0 National Co-operation

- 1.1 In India, central government has responsibility for the coordination and maintenance of standards of education, while education itself is a state responsibility. In the past, this has meant that each state takes little interest in what happens in distance education in the others. Some correspondence and distance-teaching institutions enrol students outside the state boundary. In particular the Open School, which is under a national body, the Central Board of Secondary Education, operates nationally. Language is one of the key limiting factors in inter-state enrolments: while correspondence institutes normally offer courses in the local languages and English, the majority of students elect to study in the local language, and thus choose the local institution. In addition, the university correspondence directorates have largely seen themselves as affiliated to the parent university rather than other correspondence directorates - only a few have been outward looking. These factors have resulted in a history of little cooperation or collaboration.
- 1.2 The University Grants Commission (UGC) has been responsible directly or indirectly for attempts to coordinate to date, resulting from the fact that the Government of India assigned to the UGC responsibility for the coordination and maintenance of standards in higher education. In 1961 the UGC set up a committee to consider correspondence education, which resulted in the establishment of the University of Delhi Directorate of Correspondence courses. As other universities followed suit, the UGC established a committee for part-time education and correspondence courses. Anxious to improve standards, the committee supported new initiatives, and backed the early plans for an Open University documented in part 1 of this paper. It also tried to promote coordination through encouraging meetings and associations. In 1972 the first national seminar on correspondence education commented on the lack of collaboration and the 'needless duplication' of courses. Meanwhile an educational delegation to the USSR had brought into focus the potential of correspondence education. Late in 1972 the UGC held a special meeting to consider a proposal from Professor Bakhshish Singh to set up a National Institute for Correspondence Education. This would be a central body for coordination, training and research. The proposal was accepted, but deferred in 1973, probably because a proposal for an Open University was again on the agenda.

* This section was compiled by Janet Jenkins in collaboration with P Satyanaryana

In 1974 the UGC sponsored a conference of directors of correspondence courses. On this occasion, there was little mention of collaboration. Two years later, a National Seminar on Correspondence Education at Punjabi University resolved to form a National Council for Correspondence Education. This Council was established with Bakhshish Singh as its first president. Initially the Council was quite active. In 1978, India hosted the world conference of ICCE, with Professor Bakhshish Singh as conference host. The NCCE produced a special publication for this conference, and provided other support. Professor Singh then began a term as President of ICCE, and the national association has not been very active since. A third National Seminar on Correspondence Education in 1982 again complained of 'Correspondence Course Institutes ... functioning in isolation from one another', and a fourth seminar urged that, while the NCCE should remain 'the only representative body of distance education in the country', a 'central organisation' was needed for research, training and coordination of activities in distance education. The NCCE thus recognised its own limitations.

- 1.3 Some isolated efforts have been made to encourage collaborative work, mainly on the initiative of Punjabi University, Patiala. Two workshops occurred for writers in specific subjects, one for history, the other for political sciences. In addition, a course in defense studies offered by Punjabi University was also offered by Punjab University. These initiatives were some years ago, and have not been followed up.
- 1.4 Other attempts at National Cooperation have been limited to training. Over the last 10 years 24 regional seminars on correspondence education were conducted.
- 1.5 1985 brought a major change and the scene is now set for greater collaboration. The Act of Parliament establishing the Indira Gandhi National Open University assigned to it the task of coordination and maintenance of standards for distance education.

As yet, it is too early to say how successful IGNOU will be. But initial action promises well:

- * a conference of directors of correspondence institutes in January 1986 (see section x);
- * a small committee with a representative from each of the concerned sectors has been established to devise guidelines for coordination and oversee their implementation;
- * a national conference on distance education was jointly organised by IGNOU, the Association of Indian Universities and Gujarat University to coincide with the annual meeting of Vice-Chancellors November 1986. This gave considerable publicity to distance education;

- * in an attempt to improve standards nationally, IGNOU is introducing in 1987 a diploma course in distance education. This will provide training to personnel in all kinds of distance teaching. As a result of initial publicity, the course has attracted 3,000 enquiries. A Masters level course will be introduced as a follow on.
 - * the university has established a partnership with the Union Ministry of Agriculture and Rural Development for its course for rural development officers. It is free to establish other such cross-sectorial links for its professional courses.
 - * IGNOU is beginning to include staff from other universities in training visits. Some staff from Andhra Pradesh Open University were nominated by IGNOU for ODA-sponsored visits to Britain.
- 1.6 Recently, two states, Tamil Nadu and Maharashtra, have taken steps to establish State Open Schools. The Director of the Open School, New Delhi, is on the board of both these schools, and the Open School course material is freely available to these schools to use as a model, to translate or adapt.
- 2.0 International cooperation and links have been on the same small scale as national cooperation.
- 2.1 In recent years, the most notable regional linkage has been through Unesco, particularly the Consortium on innovation within the framework of the Regional Cooperation Programme in Higher Education for Development in Asia and the Pacific. This includes an attachment programme at the Sukhothai Thammathirat Open University (STOU), Thailand, which was attended by two delegates from India (1985), a workshop on the production of distance teaching materials in 1985 at STOU; on broadcast materials at Allama Iqbal Open University (1986); two Indians attended each; finally a national workshop on production of distance education materials took place in India in October 1986. People from correspondence institutes and open universities attended. Finally, Unesco organised a mission to look at distance education in China, and the Vice-Chancellor of the IGNOU attended from India. Unesco has also had a role in the development of distance education through its support for INSAT and the development of educational broadcasting at CIET. The current Unesco programme is due to end in 1987.
- 2.2 Internationally, the hosting of the IOCE conference and the subsequent Presidency of Professor Bakhshish Singh strengthened contacts. India has not so far, however, been much involved with regional distance education associations. IGNOU, however, hosted an international seminar on distance education and experiences of open universities in November 1985, and is working to create links with Open Universities in China, Thailand, Pakistan and Indonesia. Some of these links are already strong and beneficial.
- 2.3 The most substantial bilateral links have been and remain with Britain. From the mid seventies there have been several contacts with

the British Open University: for example, it provided personnel for one of the workshops listed in section 1.3, a series of workshops in 1978, and some more recently. Indians have attended the International Extension College short course on distance teaching at the University of London Institute of Education. One of these now heads the Open School, New Delhi, while the Director of the EMRC Pune took his Masters degree at ULIE with a specialisation in distance education. The British government has sponsored most of these activities, and has also supported occasional study tours, including some state-level visits to Britain and its Open University. The UKOU model of distance education has as a result had some influence on the development of distance education in the region, although ideas have been adapted rather than borrowed wholesale.

- 2.4 With the advent of IGNOU, further bilateral links are developing, with Britain through the British Council, ODA (funded by ODA) and with universities in other Commonwealth countries, such as Athabasca University, Canada. Proposed links include staff exchanges, supply of equipment, consultancy, training, and in the case of Athabasca University and the International Extension College, joint planning and development of some materials for mutual use.
- 3.0 Experience of cooperation in India at all levels has thus been rather limited. National cooperation is not easy, given the huge size and relatively weak infrastructure of the country, the fact that education is the responsibility of the separate states, and language differences which affect education at all levels. International collaboration has also been limited. In the past, this has to a great extent been because it has not been seen as important. Many of the Correspondence Institutes have been and remain parochial in their outlook, relating only to the university of which they are part. Some are demoralised and of a poor standard. Despite these weaknesses and constraints, India has built up considerable expertise in distance education and has confidence in her ability to develop indigenous models. There is also amongst the more dynamic sectors an awareness of the need to change, and the conditions for that change to take place are now being created. Indian distance educators are now beginning to look outward, and have articulated a number of ways in which international collaboration could help the development of distance education in India.

V. POSSIBILITIES FOR NEW INITIATIVES

These suggestions have arisen from discussion with distance education in India. The presentation below does not imply any order of importance.

1.0 Information

The following information needs were identified:

- 1.1 Information on distance teaching institutions, their organisation and structure, staffing patterns, methods of course production, and other

administrative features. This would be of particular use to institutions in process of development or change. This could also include detailed explanations of institutions of special interest, either within the Commonwealth or of interest to Commonwealth countries, for example, studies of China and USSR. Such information could include the translation of documents into English.

- 1.2 Information on courses and course materials available, including print, audio and video media. The information would need to enclose a brief description of the item to a standardised format and distribution of information would imply a willingness to distribute a sample to any other interested institution, and possibly readiness to agree terms of sale or reproduction.
- 1.3 Information such as articles, abstracts, reviews, conference articles, reports, possibly in a form to feed local journals or newsletters.
- 1.4 Information on other resources would also be valuable: this could include collections of extracts or papers available for subject teaching or on distance education; it could also include lists of suitable recommended equipment for production, record keeping, or distribution, possibly with concessionary rates arranged.

This information would best be disseminated by a central body, which would collect from and distribute information to regional centres following a standard format. To cover India effectively, there would probably need to be a main centre and some subsidiary centres. Ideally, the main regional centre would not only hold information but also hold a collection of all materials listed as available for exchange, and a regional specialist library on distance education.

2.0 Materials

It would be useful to explore possibilities of institutions using each others' courses. At the university level, it should be possible for each user to allocate a credit equivalence to materials without too much difficulty. Materials most suitable for sharing, because less culture bound, are in science and technology; arts subjects, including languages, are next, with social sciences least suitable.

Materials exchange can take two forms, one-way traffic where one institution offers the courses of another, and full exchange, where two institutions mutually offer the same courses. In the first case, IGNOU intends to encourage sharing on a national scale, with only one institution of open learning developing materials in a particular subject and making those materials available to others. The Open Schools are starting to do this already. The idea that this should be tried internationally is therefore feasible; a start could be made if each open university were to select and offer a few credit courses from others abroad.

As for the full exchange, the IGNOU and Athabasca University are starting to experiment with this on a pilot basis; each university will develop a credit course, IGNOU in Indian Art, and Athabasca in a

subject to be agreed, and each course will be on offer in both universities. The details of this experiment are currently being finalised.

A central organisation would be helpful to support such exchange on a large scale. In particular, besides providing information and helping establish links, it would be needed to negotiate terms of use quickly, and probably to arrange credit or provide a bridging loan while foreign exchange arrangements were made.

3.0 Training

Staff training was given high priority by numerous distance educators. There are some experienced trainers in India, and some centres which have already organised training are a useful resource both nationally and regionally. These include NCERT for distance education, DECU for rural television, and some of the EMRCs for broadcast applications. The CIEFL, Hyderabad, has a special expertise in training for teaching English as a Second Language, including design and development of distance teaching materials. Some of the better distance teaching institutions such as the Open School and the Andhra Pradesh Open University have staff who can make valuable contributions to training. The Indira Gandhi National Open University is, however, set to become the main training institution in India, with the launch of its Diploma in Distance Education in early 1987, followed by a Masters in 1988. Besides its current expertise in materials production, it also has capacity to train staff in teaching English as a second language at a distance. It will also by necessity develop expertise in training for audio and video production even before its studio facilities are complete.

These facilities will not however be sufficient. There is a need to train the trainers. Such training could take the form of internationally run refresher courses or specialist courses; it could also include training attachments to institutions elsewhere; and exchange visits could serve as vitalising refresher courses. The development of interinstitutional links for such exchanges is seen as most important by many of the state institutions.

There is probably also a temporary need for more inputs into basic training, in particular for the design and development of multi-media materials and the production of audiovisual components. Another kind of training could be subject-specific, for example for history writers and tutors. There is a strong feeling that such training should be short and take place in India in order to benefit larger numbers.

4.0 Joint materials development is hardly considered by most institutions, who are tied to the syllabuses of their partner universities. The Open Institutions are however interested in this as a future possibility.

4.1 One model would be to form an international group to examine a particular subject area. An example quoted was management. The group would identify topics where the content varied little from country to

country: in management, these would be post-elementary topics, as the basic material is more closely tied to culture and environment. After identifying topics, the team would examine course materials submitted by various institutions, select suitable ones, and adapt them for common international use. This would only be possible for a restricted number of topics.

- 4.2 Another model is bilateral, and IGNOU and the International Extension College are planning to experiment with this in the joint development of parts of their diploma and Masters courses in distance education. After working together on syllabus development, the two institutions expect to use some of each others' units, and to work together on the development of other units, while yet further units will be separately developed.
- 4.3 These proposals tie in with other suggestions that international interest groups are needed. These could include subjects areas, particularly relatively new subjects like women's studies, and sectors such as disabled students. A further interest group might be concerned with promoting research, although this is unlikely to be successful internationally without a strong local research base.
- 5.0 Two special cases where international collaboration could be beneficial are the use of distance education for first, technician and vocational education, and second, agriculture, rural and community development, including health.

In the first case, a strong shift is needed in attitudes to get technical and vocational subjects accepted generally, and to convince people that distance methods may be used well for such education. In the latter case, effective education right through the sector is inhibited by barriers between ministries, although IGNOU has already crossed one barrier by working in partnership with the Ministry of Agriculture and Rural Development for its course for rural development cadres. There is also considerable resistance to the idea that distance education can be effective as a tool for mass education and rural development. In India, it is seen largely as something for tertiary studies. These two sectors are so important, and these problems so familiar from other countries, that there may be a case for establishing international units to promote distance education for these purposes.

6.0 Evaluation

Evaluation of distance education in India is weak. The attitude of many is negative. The suggestion was made that distance education institutions in India badly need to introduce the following kinds of evaluation:

6.1 Materials evaluation

This could be approached in three ways:

- (a) the institution could do it;

- (b) an institution could invite another (with its responsibility for maintaining standards, IGNOU is likely to develop expertise);
- (c) interest groups such as those described in section 4.1 could do it on behalf of an international body.

6.2 Evaluation of other parts of the system such as student support services.

6.3 Evaluation of the institution as a whole every five years or so.

All these would benefit from international guidelines on evaluation and standardisation of guidelines. Evaluation as described in 6.3 would normally need the participation of an external evaluator, and an international service could nominate suitable people.

7.0 International gatherings

A number of opportunities are available to Indians for national regional and international gatherings of distance educators. Some people however suggested that regular Commonwealth conferences of distance educators would provide a useful additional forum, particularly since the Commonwealth shares the English language and communication is thus easy. Such conferences should provide opportunities to attend to those who seldom get such a chance.

8.0 Implementation

The IGNOU is well placed to become a regional centre for new initiatives. It is already developing a strong resource base, and with its obligation to coordinate and maintain standards, it will be the most effective organ in India to carry out these tasks. It is also likely to become a resource for other Commonwealth countries in Asia. Any initiatives, however, should be carefully coordinated with steps towards regional collaboration taken in non-Commonwealth countries (see Asia region paper).

There will probably be a need for subsidiary centres in India at least to carry information. These could be designated by IGNOU as appropriate.

List of people seen:

In compiling sections IV and V of this paper, the following were consulted:

Professor Naryana Reddy, Vice Chancellor, Andhra Pradesh Open University

Professor Prasad, Head, Department of Social Sciences, Andhra Pradesh Open University

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PAPER 7

DISTANCE EDUCATION IN THE COMMONWEALTH ISLANDS OF THE SOUTH WEST PACIFIC

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CHAPTER SEVEN

1.0 The Region

The commonwealth countries that constitute this region are Papua New Guinea, New Zealand and the countries that collaborate in the University of the South Pacific (USP), recognising that some of these have other organisations and agencies for higher education; these USP countries are Fiji, Tonga, Western Samoa, Solomon Islands, Tuvalu, Kiribati, Vanuatu, Nauru, Niue, Tokelau, and the Cook Islands.

Although the USP group are together because of their membership of that particular distance education university, there are many ways in which they sharply differ among themselves, in ethnic make-up, in political constitution, in the European cultures which have influenced them, in their economies and trading partners, in recent and past history, and their aspirations for the future. There are 11 states, each differing from the others, and in some cases composed of islands which claim substantial difference from the rest. If we take their present political status, while New Zealand was an early independent member of the Empire and Commonwealth, the other countries of the region have only become politically independent since the late 1960's. Some like Niue, Tokelau and the Cook Islands remain dependent, for example for security, on another larger neighbour. Some countries remain economically dependent on those larger neighbours, not only for direct aid, but on the remittances of their expatriates working abroad.

Populations are small and scattered. New Zealand has three million in an area about the same as the United Kingdom. Papua New Guinea has about the same population scattered over the fragmented terrain of its main island, the western half of which is part of Indonesia, and its archipelagoes of smaller islands stretching out into the Pacific. Nauru and Niue are small islands with populations numbering a few thousands. The other countries are clusters of islands, as ethnically and linguistically diverse within as they are from the region's countries. All told the rest add only one million to the six million in Papua New Guinea and New Zealand.

For a population of about seven million, there are perhaps a thousand languages, according to some counts, most of them in Papua New Guinea and the Solomon Islands. Mission and government efforts have produced widespread competence in English with pidgin forms in the Melanesian States of Papua New Guinea, the Solomons, and Vanuatu. There are several related Polynesian languages in New Zealand, Samoa, Tonga, Tokelau, parts of Fiji, Niue and the Cook Islands which retain and have even increased strength as significant elements of cultural identity at home and among expatriate Polynesians.

PATTERNS OF DEVELOPMENT

2.0 The Educational Scene in 1960

A larger historical account would show that politically, economically and educationally, the principal events related to higher education and to distance education, in particular, occur in the period from 1960 onwards. This paper, therefore, attempts to characterise education throughout the region in 1960, then moves forward to the present to identify the principal changes and current issues.

In 1960, Papua New Guinea had recently begun to accelerate towards independence. Education was no longer dependent on the slender resources of scattered mission schools. The task of the Australians before they left Papua New Guinea was to open more schools and provide sufficient trained local teachers to maintain and expand primary education. Much was done to harmonise, integrate and support the mission schools as part of a comprehensive national system; time ran out before the task was complete but great strides were made in systematising primary education, building, staffing and equipping new schools, developing curricula and laying the foundations for future maintenance, growth and development. Less progress was made in secondary education, not unexpectedly as the flow of students from primary education remained uncertain. As for higher education, the University of Papua New Guinea was already being planned in 1960, and there was to be a University of Technology in Lae as well as teacher colleges. Before then, higher education was distance education. Some enrolments, mostly among expatriate Australians, were accepted by the University of Queensland, and some by the University of New England, then the two principal Australian distance education institutions. Otherwise higher education could be obtained only by leaving Papua New Guinea.

New Zealand in 1960 was also moving forward dramatically in higher education, but from a quite different basis of development. Universal primary and secondary education were well established, teachers' colleges were burgeoning with the shift from two-year to three-year training in prospect. Generous university opportunity existed but technical education, except for some that was provided at sub-degree level in some professional schools of the universities, was underrated and thought to need as its basis only weaker forms of secondary education. University education in New Zealand in 1960 was at a major point of departure: its federal system was about to lead to four separate universities, Otago, Auckland, Canterbury and Victoria (Wellington), together with two other full universities, one New Waikatu, another developed in 1964 from Massey Agricultural College and the nearby branch college of Victoria University, where a tuition system was established, in 1960, for a revitalised programme of extra-mural (distance) studies.

In 1960, the islands of the South Western Pacific still seemed some way from independence. In education, however, the New Zealand based scheme of co-operation was providing universal primary education in Fiji, Tonga, Western Samoa, Niue, Tokelu and the Cook Islands,

supplemented by considerable post-primary opportunity. Educational opportunity in the remaining island communities, the British Solomon Islands Protectorate as it was in 1960 (now the Solomon Islands), the New Hebrides, then an Anglo-French condominium, which has now become Vanuatu, the Gilbert Islands (now Kiribati), and the Ellis Islands (Tuvalu), was not so widespread.

Higher education in 1960, particularly university education, was sparse among these island countries. The School of Medicine in Fiji provided medical education. Schools of Agriculture existed in Fiji and Western Samoa, and there were Teachers' Colleges. Fiji had the Derek Technical Institute (now the Institute of Technology), and some Christian Missions provided vocational courses. University study for those who did not go overseas was by correspondence from London University's external degree programme, from Queensland University which was phasing out its enrolments from the Pacific, and from New Zealand's extra-mural programme. While these opportunities suited expatriate teachers working in the Pacific Islands, they were neither designed for, nor were they successful with, students whose cultural background, study skills, educational expectation and local support were very different from the originating countries. Not surprisingly, when in the mid 1960's a federal university of the South Pacific was proposed, suggestions were made that it should not only provide campus-based education within the local setting, but should provide distance education courses attuned to the cultures which the university would serve.

3.0 The Educational Scene Today

By the mid 1980s, the scene was very different. All the Commonwealth countries of the region were independent (their non-Commonwealth neighbours include American Samoa, and various French Polynesian dependencies). Education has great significance in government policies. Each remains concerned about the provision of places in schools and other educational institutions; about the quality of teaching and teachers' professional pre-service and continuing education; about curriculum issues, particularly those which affect national identity; about the use of vernacular languages and the teaching of English; about employability, not only at home, but in New Zealand and Australia where a wider range of more technical jobs exists. All could reasonably claim substantial education achievements since 1960, particularly in expanding secondary education, devising more diverse and appropriate curricula, improving the quality of teaching and a stronger local basis for higher education.

In New Zealand, universities have increased in size, diversified at undergraduate and post-graduate levels, and are more or less sufficient for New Zealand's needs in producing fully trained manpower. Like their Australian counterparts, New Zealand higher education institutions provide for many Asian Commonwealth students at undergraduate as well as graduate level. Also like their neighbours, they attract many post-graduate students from the Commonwealth Islands of the South Pacific, but they have quotas and stringent regulations for undergraduate students taking their first degrees. Alongside the

universities, attracting an increasing number of better-qualified students, has evolved a system of technical institutes, polytechnics and community colleges, offering vocational courses, but also identifying the educational needs and expectations of a wider public, mostly beyond their early post-school years, who are seeking continuing or community education. University education has never in New Zealand been limited to young adults straight from school; for many decades mature age part-time students, creating pressures for evening degree classes, were considered the bane of New Zealand university education. Nowadays, the universities have more interest in such students, but must compete for them with other higher education agencies. In such a context, distance education has scope to flourish.

In Papua New Guinea, primary education has made much progress, although only about 55% of primary aged children are in school. At the secondary level, only a third of primary leavers get places. In recent years, emphasis has been on expanding secondary education. Development at the upper secondary level has not been so widespread to put tertiary education under severe pressure. Papua New Guinea has lively universities, in the University of Papua New Guinea (UPNG), in Port Moresby and the University of Technology in Lae, as well as a Teachers College at Goroka and several other post-secondary developments. There have been discussions about university level distance education but no major pressure.

Among the other island territories, Fiji has gone ahead further. While this may be the result of a larger population and more economic diversity, it is also in spite of greater ethnic diversity than is experienced by the other countries. Substantial quotas are reserved for Fijians in the upper levels of secondary education, in the university and in the polytechnic. Since government provides amply for Fijians at the upper secondary level, and allows the Indian communities to provide for themselves which they also do in generous measure, competition for Fiji's quota of places at the University of the South Pacific is keen. On their return, they commonly need some professional post-graduate qualification to make them acceptable in Fiji's professional life. They have created a market for quality courses in part-time, or off-campus, or distance education modes.

Since its foundation in 1968, the University of the South Pacific has been a major resource for the countries which it serves. Its schools of study, originally named natural resources, education, social and economic development, to indicate their functional purposes, have produced a steady stream of graduates in the last decade. While there have been complaints about the slow rate of production and the cost per student, those arguments are largely unjustified in the face of the quality and performance of graduates and diplomates. USP has been a resource base for its member countries in other ways. Training and research for specific needs, outside the framework of degrees and other qualifications, have flowed from the institutes set up in the mid 1970s; some such as natural resources and education and administration are alongside the schools of study; others for research or for Pacific studies have special entities within the

university framework. Extension studies have been another resource for the countries of the region; local centres have given visibility to higher education and have provided courses of an ad hoc nature to meet immediate needs. They have also provided a back-up to local distance education students, via the satellite link which has served USP for several years.

THE DEVELOPMENT OF DISTANCE EDUCATION

The principal agencies of distance education at post-secondary level among the island countries of the South Pacific are as follows;

4.0 Papua New Guinea

Papua New Guinea, College of External Studies (COES)

The college began its operations in 1957 as a training centre for the Public Service Commission and conventional classes were held for adult public servants. However, within two years, this specific function was to disappear from the College's operations and the College was given responsibility for preparing school based correspondence courses. Initially focused on lower secondary courses, the College gradually extended its courses into higher grades replacing the operations of Australian correspondence schools.

The College's main activity is providing secondary (Grades 7-10) correspondence education to those who do not continue in the formal school system. It also provides a Commerce Certificate for employed adults. About half of the courses parallel those taught in provincial high schools and the College awards its own certificates. Students may enrol and be examined at any time of the year and may study entirely by correspondence or in registered study centres or in arranged classes.

At the present time, the College is moving steadily to complete a full complement of Grades 7-10 courses and undertake a revision of the Commerce Certificate. Future activities consistent with the College's present directions would be the re-writing of some Grade 7-10 courses so that all courses (and the COES Grade 10 Certificate) are completely aligned to the national school curriculum and the offering of Grades 11 and 12 to full matriculation level. Organisational factors that can be expected to materially affect the College's operations are the decentralisation of administration and marking to provincial centres.

The University of Papua New Guinea (UPNG)

UPNG through its Department of Extension Studies offers Adult Matriculation (Grade 11 and 12) and a limited number of first year (Foundation Year) courses which form part of the University's Bachelor of Arts and Law Degrees. At present enrolments stand at around 750 Adult Matriculation and 250 Foundation Year students each semester. Enrolments have tripled in the last year and could mushroom. There is huge demand - the problem is building up a more efficient administrative structure in the Department to cope with new growth.

One of the most important developments for extension studies at UPNG has been the establishment of three extension centres in three of the country's provinces (East New Britain, Madang and North Solomons). While individual students scattered around the country do enrol in extension courses, the largest number of enrolments takes place in those provinces where University Centres have been established. It has been found that students have a better chance to succeed in their studies when they have access to tutorial assistance and general counselling and support, which the staff of University Centres are able to provide.

The University of Technology

The University of Technology in Lae has developed some off-campus courses at pre-university level. Before the demise of the ATS-1 satellite in 1985, the University of Technology had a terminal and participated in some of the distance education discussions which were developed through the satellite network. In 1983 it initiated a wider Pan Pacific discussion group for distance education, which lapsed when the future of the satellite became uncertain.

Australians can continue to enrol through the University of Queensland and other distance education institutions. Some expatriate New Zealanders enrol with Massey University and fulfil its residential conditions. Massey University's Certificate in Teaching of a Second Language (English) has attracted a wider clientele since it is not restricted to New Zealand expatriates. These enrolments suggest that, as the teaching profession is upgraded, there will be a steady market for mid-career professional courses for teachers of various kinds, diversifying the offering of the College of External Studies or utilising courses from other agencies outside Papua New Guinea which have such courses readily available. There may be a tendency to seek courses useful for public servants and professionals in law, commerce and other activities, as indigenisation of the professional sector proceeds. Papua New Guinea is likely to become a market for external courses export from Australia (and New Zealand if it adopts a more open policy towards overseas enrolment). But existing links between the University of Papua New Guinea and the University of the South Pacific are more likely to result in UPNG looking towards USP for models. Current costs in the UPNG budget make any immediate move into distance education unlikely, but in the longer term USP could provide courses for adaptation.

Papua New Guinea appears to be a Commonwealth country whose educational development is at a stage where distance education could contribute much more widely than present provision allows; it has neighbours experienced in distance education; it already participates in International Council for Distance Education and Australia and South Pacific External Studies Association activities and participated in the satellite relationships created by ATS-1. Since the footprint of the Australian National Satellite has been extended to cover Papua New Guinea, there seems a strong likelihood that developments in distance education through that Satellite will be able to provide additional services for Papua New Guinea. Papua New Guinea's

particular problems of difficult terrain in the major island and scattered island communities, fragmented not only physically but also linguistically, suggest that Papua New Guinea could be a country in which the development of Commonwealth co-operation in distance education could be worthwhile, could be initiated without great difficulty on the basis of the distance education experience of its neighbours and could generate models of co-operation that will serve outside the South West Pacific Region.

New Zealand

New Zealand Correspondence School

New Zealand has a counterpart system in distance education to that of the national, public system of education. At the school level, the New Zealand Correspondence School is a reputable institution with 66 years of experience of distance teaching, primarily by correspondence, but supported by audio and video cassettes and by a substantial network of regional teachers and parental support; it caters for 17,500 adults who have returned to school study, or who find the flexibility of subjects at the upper levels of New Zealand schooling provides them with a valuable source of adult education, and over 7,000 children at primary and secondary level.

For school children the roll is open to all who are eligible and is compulsory when they cannot get to another school. Students from other schools may enrol if courses that are essential to their future are not available locally. Adults may enrol usually for part-time study if they are unable to take courses locally. There are no fees for school aged pupils. For adults \$15 is charged to cover postal costs. This fee is under review at present.

In New Zealand there are national syllabuses and prescriptions for all state schools and the Correspondence School courses are based on these. A full programme is provided at primary and pre-school levels and the school teaches most of the secondary subjects available in the New Zealand curriculum and many more than are provided by any other school in the country. All courses are made up of 15 to 20 written assignments together with supporting material in the form of audio tapes, pictures and slides, kits of material for practical work. Library books and texts are also lent. Returned completed assignments are marked and sent back to pupils by teachers together with new work.

Teaching staff are recruited from the national state and private schools. They must all be trained and registered teachers and work under the same regulations and are paid the same as teachers in state schools.

Student pass rates are in the main maintaining or improving their levels from year to year and these levels are comparable with those from other schools.

The per capita costs for pupils can be compared annually with those in other types of schools.

Annual Operating Costs in \$ per Pupil

Financial Year

Pupils Attending	1980/1	1981/2	1982/3	1983/4	1984/5	1985/6
State Primary Schools	820	1024	1145	1196	1244	--
State Secondary Schools	1606	1734	1849	1855	1956	--
Correspondence Schools (All Pupils)	959	1114	1238	1260	1553	1725

New Zealand Technical Correspondence Institute

The New Zealand Technical Correspondence Institute, the counterpart in distance education of the technical institutes, polytechnics, and community colleges, has an annual roll in excess of 32,000. TCI was founded as a distance vocational education centre in 1946. Its original role was to assist returned servicemen to study for a trade. It was then called the Army Education Welfare Service. From humble beginnings, it branched out into technician education in 1959. Later, professional courses such as accountancy were offered.

The Technical Correspondence Institute provides courses in over 940 technical subjects. In technical education there are examining bodies which set national standards and prescriptions for many subjects and the Technical Correspondence Institute develops courses leading to these qualifications. In some cases, where there is no national examining authority, courses are designed to meet the requirements of the industry concerned. The entire process of course production, once the prescription is decided, is carried out by the Technical Correspondence Institute staff.

The Institute teaches only vocational subjects, and has considerable expertise in doing so. There are nearly 400 tutors, nearly all recruited from industry or commerce, and about 100 administrative staff. Tutorial support is highly personal.

About 25% of vocational students study with TCI. The results of public examinations conducted by various authorities show that Technical Correspondence Institute students usually have a distinctly higher pass rate than the average for all New Zealand students.

The per capita costs for Technical Correspondence Institute students are estimated for the last four years to be

1982/3	1983/4	1984/5	1985/6
\$395	\$390	\$410	\$430

The main medium of instruction is texts, with some audio tapes. At one time some video tapes were produced, but only a small percentage of students have VTRs. Courses are presently being developed for students with computers.

While both the Correspondence School and the Technical Correspondence Institute are single mode institutions in the sense that they teach only distance education students, both teach to the prescriptions of courses which are taught elsewhere in face-to-face institutions; both contribute to the development of national curricula for those programmes; both, however, have some courses exclusive to distance students; for example, the special needs section of the Correspondence School deals with problems of individual students in particular circumstances that would not permit them to follow the regular school programme; and the Justices of the Peace Course at the Technical Correspondence Institute exists only in a distance education form.

Massey University, Centre for University Extra Mural Studies

At the university level, Massey University's Centre for University Extra Mural Studies provides undergraduate credits towards the degrees of seven of the University's faculties and towards many diplomas and certificates. These same credits can contribute to the degrees of the other New Zealand universities, when the students of those universities are unable to attend internal classes, and register for tuition in extra-mural courses. Massey University therefore is the provider of distance education for the entire New Zealand university system. Courses are primarily in print, many accompanied by audio cassettes, some with video cassettes; face-to-face contact occurs at vacation courses on the campus, or at off-campus weekend courses conducted by Massey's staff. Some subjects have regional tutors but there is no network of regional centres; however the Extra Mural Students Society has developed a very substantial support system with 'communicators' throughout New Zealand (and for pockets of Massey University students in Papua New Guinea, Fiji and Western Samoa), to counsel new students, generate study circles and act as a liaison with the University on behalf of individual students. The Extra Mural Studies Programme originated as a service for teachers; it now serves a wide range of professions, such as nursing, business, public service, social work, farming. To provide for such diversity in a country with a small population means that economies of scale are not possible and therefore other economies must be made in styles of presentation; nevertheless, Massey University has retained the opportunity for its academic staff to upgrade and modify their courses afresh each year.

The Advanced Studies for Teachers Unit

The Advanced Studies for Teachers Unit (ASTU) enables teachers to upgrade their qualifications, and undertake professional studies in subjects such as the curriculum or the changing technology of teaching.

It was relocated close to Massey University in 1984 at Palmerston North Teachers College. With most of its students certificated teachers, the Unit provides opportunities for them to extend their professional qualifications. Courses, in general, evolve as the result of curriculum changes, advances in educational technology or the demands of career stages. An increasing number of its students are graduates with a number having gained their degrees as extra-mural students of Massey University who bring with them confidence in studying at a distance.

While the Unit's major instructional medium is written material supplemented by audio cassettes, it is gaining expertise in the production of videos for teaching specific skills, particularly music. With each of the teachers colleges providing tutoring staff, the Unit is able to ensure each student is taught by an experienced teacher trainer with the appropriate tertiary academic background.

A strength is its model for course development. It draws not only on its own staff but also on the expertise of leaders in their respective fields throughout New Zealand and the Unit's target groups. Together these people meet as a subject advisory group to plan the structure of a course. Course writing may be undertaken by a team or an individual generally found within teacher education, which includes the Unit. Less reliance is now being placed upon writers in other spheres of education. Editing and production remains the responsibility of the Unit. Surveying prospective student groups has proved to be a sound initiative as a step toward satisfying the needs of students.

An increasing number of courses have their counterparts in the nation's other teachers colleges as face-to-face courses, with an increasing use being made of ASTU teaching materials. All in all, teacher education is currently involved in working with some 8,000 post-service enrolments, with the Unit teaching some 5,700.

As a component of teacher education the Unit has been able to become actively involved in the introduction of curriculum changes. In particular, a course in Health Education is accepted as the basis for training teachers who have been selected by the Department of Education to initiate and manage health education in their own schools.

As part of the national drive to upgrade the status of pre-school teachers the Unit in the last three years has developed six courses. The Unit was able to capitalise on the expertise gained on the preceding eight years through its contribution to the training of childcare personnel.

The Unit also assists other organisations interested in teaching. Currently the Unit is professionally associated with those working in Intellectually Handicapped Centres, generally lay people, through the "Certificate of Social Education and Training of the Handicapped", Police Education and the Schizophrenia Society. It has courses for "Community Karitane".

A number of visitors from South East Asia and the South Pacific have helped the Unit build bridges. Teachers from the Cook Islands have continued to study with the Unit. Some co-operation with teacher education in Papua New Guinea is a strong possibility. Expatriates continue to enrol with the Unit with one student from Bhutan looking forward to gaining her qualification in the near future.

Other New Zealand Initiatives

Apart from these four major institutions, New Zealand has several smaller distance education operations. Otago University has an interactive study-centre network of off-campus lectures. In 1984 the University Grants Committee approved the development of a national network using these teleconference techniques to offer professional programmes at a postgraduate and post-experience level. These will usually include health sciences, such as dentistry and medicine. Waikato University teaches a certificate for continuing educators from its Department of Continuing Education. The Workers Educational Association - Trade Union Postal Education service provides correspondence courses for workers and their families to improve their basic level of educational achievement and to undertake studies of interest to members of the workforce, particularly if they engage in trade union responsibilities. This service is about to be subsumed under a Trade Union Education Authority whose proposals for distance education seem likely to turn more towards the use of broadcasting media than correspondence. The Radio New Zealand Continuing Education Unit provides ad hoc adult education courses of public interest through radio, with support print material; once programmes have been broadcast they are distributed in audio cassette form to public libraries for further use. Finally there are, of course, the commercial correspondence colleges, two of them involving substantial numbers, and several much smaller very specific operations, for example the courses in small business management conducted by the Development Finance Corporation.

The Marriage Guidance Council of New Zealand conducts two correspondence courses, one for its counsellors, another for tutors in human relationships. Several professional societies offer distance programmes for continuing education.

In New Zealand, distance education has wide public acceptance and this has enabled a diversity of activities to evolve. It also generates expectations among New Zealanders who travel abroad that distance education will remain available to them. These expectations have created a market for New Zealand courses overseas, to which it has responded to a very limited extent, through various co-operative frameworks. Among the New Zealand distance education institutions, there has been much co-operation in recent years. This co-operation has now become focused in the Distance Education Association of New Zealand (DEANZ). DEANZ has enabled distance educators in New Zealand to report more readily the development which they are undertaking and to identify the needs which are felt among them. Professional training as distance educators, particularly in the instructional methodology of distance education, greater access to public

broadcasting and recognition of the role of new communication media in distance education are the principal current interests.

6.0 University of the South Pacific

From the first planning of the University of the South Pacific, it was intended that distance education should be a part of the University's work. The University began to teach in 1968; distance education began in 1970, as part of a programme of extension studies which included continuing education programmes at various regional centres in each of the countries that constitute the University's membership.

A particular feature of USP's distance education programme has been that it serves a multiplicity of countries federated into a single university; and that for this purpose it has used the voice-to-voice satellite communication links initially made available through the ATS-1 satellite. Programme delivery relies on support at regional centres. The University has used the satellite not only for tutorials, but also to help with the management of the extension network. Since the University required preliminary studies before the full undergraduate programme began, these two were built into the distance education programme, and, subsequently, degree credits have been made available throughout the region.

Co-operation has been part of distance education at USP since its inception: USP students can be 'registered for tuition' in the Massey University programme; the satellite network was a major exercise in co-operation by many Pacific countries; USP has special relationships with several other institutions involved in distance education, for example, Darling Downs Institute of Advanced Education, Australia; and recent developments in law, religious studies and nursing studies have been collaborative exercises with Massey University's departments which were already engaged in distance teaching in those fields. As has already been suggested, USP's existing links with the University of Papua New Guinea could provide the basis for further regional co-operation.

GAPS AND FAILURES

The difficulty with indicating gaps and failures in distance education is that there are not really norms of what should be done, or how distance education should be conducted. It seems pointless to suggest that, because New Zealand has a wide diversity of distance education at all levels of education, formal and non-formal, other countries which do not, are in some way deficient, or under-developed. But the New Zealand experience indicates that there are few, if any, sectors in which distance education should be discounted. The experience of the University of the South Pacific, moreover, shows that in distance education we have moved to the integration of new communications technology and interactive communications, even though the particular example might not be called high technology by some communications specialists. Undoubtedly the repertory of techniques and skills in distance education has increased and with it has increased the need for training in the effective and economical production of materials

in a variety of media and imagination in the applications and integration of new media in distance education.

On that basis, one can reasonably say that in Papua New Guinea there are many areas of professional mid-career development for which distance education might be employed, using broadcasting, the telecommunications possibilities resulting from AUSSAT (the Australian public-service satellite broadcasting system), and the organisation of effective delivery systems for print and cassette media. Papua New Guinea appears to be a country which would benefit from co-operative Commonwealth distance education initiatives already available in the Pacific basin. New Zealand, now that it has its own distance education association, seems set to improve the skills and training on which its comprehensive distance education system is based, in order to enable the range of educational and communication technologies to play a larger part. The University of the South Pacific, following the loss of the ATS-1 satellite, is considering the further use of communication technologies.

It is perhaps salutary to look back at a paper prepared for the 1981 ASPESA Forum. Collaboration, co-operation, off-shore activity, the introduction of communication technologies which could reach much further afield, the diversification of studies and clientele - all these incipient developments have progressed since then. But some challenges have provoked much less response. One was the concern with multi-cultural variety within the region. To quote from that 1980 scene paper:

Little, if any, distance teaching was carried out in any other language than English. The concepts were external, European concepts of logic, science, rationality, taking little account except as descriptive anthropology of any other conceptual and spiritual systems, or of the adaptation of these alien ideas to any different social or intellectual environment. As distance educators, we may have been skilled in leaping space and schedule, in individualising learning opportunities and freeing study from the institutional constraints of class and school but we must have seemed less skilful in imagining the intellect and attitudes of those recipients of our courses who did not share our cultural and educational backgrounds.

There were challenges about languages:

What difficulties confront distance education in local languages?
Should distance education be confined to major world languages?
What contribution can it make to teaching English (or another language) as a second language?*

*Bewley, D.R. (1981) Dimensions of distance: distance education in a South Pacific setting: theme paper for the 1981 forum of ASPESA, in Crump PDL and Livingston K (Eds) *Dimensions of Distance*, Massey University & University of the South Pacific.

The paper raises challenges about the tasks of adaptation and of explaining local realities and potentialities and asked what role, if any, distance systems have in the development of nationhood in new Pacific states. Does it cater for the static village societies as well as it caters for mobile people? In asking whether distance education caters as well for Pacific Island people as it does for the Europeans of those communities, it raises questions about provision when they become mobile, creating multi-culturalism in the countries to which they go, and questions about cultural maintenance among migrant communities who do not wish to lose contact with their home cultures. Amid all the achievements of distance education among the Pacific Island countries, including Australia, during the 1980s, it can still be argued that such challenges remain.

CO-OPERATION IN DISTANCE EDUCATION

The Commonwealth island countries of the South Pacific are no strangers to co-operation. There are professional associations (ICDE, ASPESA), Unesco's APEID and Higher Education Consortium Programmes, the Australian Correspondence Schools Principals' Association, the Distance Education Association of New Zealand (DEANZ) and various inter-institutional relationships.

7.0 Multinational Co-operation

Professional Associations

ICDE (The International Council for Distance Education) representation and membership throughout the region was stimulated by the decision to hold the 1985 World Conference in Melbourne, hosted by ASPESA. The prospect of attendance meant that several papers involving more analysis of issues and activities were produced from Papua New Guinea, New Zealand and USP. The region also attracted ICDE research allocations, including a study of Massey University's Extra Mural Student Society student-based support system; a joint Australian-New Zealand study of the evolution of academic staff attitudes towards distance teaching and a report of USP experience with satellite-linked tutorials.

ASPESA (The Australia and South Pacific External Studies Association) dates from 1972. Its biennial forums and the intervening workshops have brought distance educators from the Commonwealth island countries of the South Pacific into regular contact with each other and with their Australian colleagues; the 1981 forum organised jointly by USP and Massey University was held away from Australia in Fiji; a workshop in 1984 celebrating Massey University's 25th Anniversary was conducted in part as an ASPESA workshop. ASPESA publishes *Distance Education* as its professional journal and also newsletters; its fellowship scheme and research funding have not affected the South Pacific part of the organisation. Interest Groups have been active off-shore from Australia, notably the technology/telecommunications group which, until ATS-1 ceased, included Massey University and various USP terminals in its weekly satellite meetings; the student

counselling group with its secretariat at Massey University's Extra Mural Student Society and Centre for University Extra Mural Studies; and the ASPESA section of the ICDE Womens Network. ASPESA has struggled, not always successfully to avoid being dominated by the university/college of advanced education sector; it has one executive post reserved for technical and further education (TAFE), and has a school-level section (promoted to ensure that it did not take ICDE further towards becoming too exclusively a 'higher education' organisation).

There are times when ASPESA seemed to its South Pacific members preoccupied with Australian issues, or limited to exclusively Australian perspectives, with only few Australians attempting to comprehend regional rather than Australian general issues in distance education. A few exceptions had direct experience of Papua New Guinea and USP. It has yet to be seen whether the emergence of a distance education association of New Zealand will affect New Zealand membership of ASPESA, sparse before the 1981 forum, despite the extension of ASPESA to the school sector and the development of subject interest groups for agriculture, nursing studies and second language English, where South Pacific interests are strong.

Unesco's Regional Education Office for Asia and the Pacific (REOAP), in Bangkok, currently has two programmes involving distance education in which Commonwealth island countries of the South Pacific, and other Commonwealth countries participate.

a) **The Asian and Pacific Programme of Educational Innovation for Innovation for Development**

This functions through a network of institutions named by member countries for their outlook and performance in innovation. Papua New Guinea, New Zealand (since 1981), Fiji (1984), Tonga (1984), Western Samoa (1984), are members, as are Australia, Bangladesh, India, Malaysia, the Maldives, Sri Lanka (and Pakistan), as current (or former) members of the Commonwealth. Distance education figured in the work programme of the third cycle of APEID activities (1982 to 1986), as part of its interest in infrastructures for educational technology, low cost instructional materials and local educational resource centres. APEID brings together representatives from the network to share professional experience, and focus on particular aspects of development which seem worth dissemination more widely. For distance education in the third cycle, it conducted regional and sub-regional meetings on:

- Distance education in teacher education (Pakistan 1981, including New Zealand plus Australia, India, Maldives, Sri Lanka);
- Distance learning systems and structures (New Zealand 1982, including New Zealand, Tonga, plus Australia, India, Malaysia, Sri Lanka and Pakistan);
- Personnel categories, functions and training needs (Pakistan

1983, no South Pacific participation, but India, Sri Lanka and Malaysia were Commonwealth participants);

- Workshop training methods for distance educators (Sri Lanka 1984, including Papua New Guinea and New Zealand, plus Bangladesh, India, Maldives, with national follow-up workshops in Papua New Guinea, Bangladesh, India, Sri Lanka and Pakistan);
- A concluding regional review/evaluation meeting (China 1986, with New Zealand, plus Australia, Bangladesh, India and Sri Lanka).

Distance education figures in the fourth cycle of APEID activities (1987-1991), with proposals for the continuation of system development and personnel training methodology for countries recently starting distance education and also for the extension of distance education for other sectors of the education system, in particular searching out its roles, in non-formal, adult and continuing education.

b) Unesco's Regional Higher Education Consortium

In 1982, a new programme for higher education was established building on a network of institutions in the Asia Pacific region. Innovation in distance education was identified as one developmental activity. New Zealand, Australia, Bangladesh, India, Sri Lanka and Pakistan are participants. Activities in distance education so far are limited: a joint Australian/Thai programme resulted in a short article on evaluation; New Zealand and Australia shared in planning and designing (and Australia in executing) a training workshop for the development of multi-media instructional materials which was attended by participants from other Commonwealth countries. The higher education consortium publishes a newsletter, *Never Too Far*, and has scope to be a substantial focus for distance education in higher (ie, mainly university) education, especially if it becomes a focus for Asian Development Bank support.

8.0 Co-operation on a National Level

The Distance Education Association of New Zealand (DEANZ) reflects the co-operation that has long existed across the levels of distance education there. It includes adult and rural education agencies involved in distance education as well as the main providers. Anyone may join, including clients such as adult students or parents of pupils. Its President is from the Correspondence School, its Vice President and Treasurer from the Technical Correspondence School, and the Secretary from Massey University. It is concerned with ensuring public professional political interest in the well-being of distance education, but it is co-operative rather than confrontational in these matters. It seeks to disseminate distance education skills more widely and improve the quality of distance learning and teaching; to this end, it has set up a committee to review and extend training: it hopes to extend access to broadcasting, it has a newsletter and well-attended annual meetings. It has already become an agency which

government consults and through which major providers maintain liaison with the public.

9.0 Co-operation Between Institutions

Massey University

Massey University has a wide experience of such co-operation. Some examples follow:

1. Massey University - USP

'Registration for tuition' allows students at a non-distance-learning institution who have attendance difficulties to enrol in Massey University Extra Mural (ie distance education) courses. It is accepted throughout the New Zealand University system, enabling distance teaching to be concentrated for many years at one institution, and the others to slough off any provision for non-attending (even part-time) students. By adding USP to the legislation that enables registration for tuition to occur, Massey University achieved several objectives:

- it extended the range of choice available to USP distance education students;
- it avoided Massey University competing with USP, since it could advise students to seek USP distance learning courses or to seek enrolment through USP as students of that university; and although Niueans, Tokelauans, and Cook Islanders are technically eligible to enrol as New Zealand citizens, they too are counselled to enrol with USP if that seems more appropriate.
- it enabled Massey University to provide courses where they were needed without being obliged to admit students (through its open entry regulations) about whom judgements about admission were better made locally.

Very few enrolments occurred in the early years of this arrangement, but numbers have increased in recent years.

One popular course has been Massey's Early Pacific History paper which itself benefitted from feedback and participation by its Island-based students.

There have now been some collaborative ventures in course development:

- a) **Accountancy.** A first-year level course was developed in the mid 1970's through a sequence of co-operative activities.

At the first stage, several students were 'registered for tuition' as a group in one country in the Massey University Accountancy Course for credit towards a USP degree; in accordance with usual practice their assignments were returned to

a tutor at Massey University, with guaranteed rapid turnaround. In the meantime, at USP, an academic familiar with New Zealand foundation accountancy courses acted as supervisor for the students, conducting satellite tutorials with them and visiting them for a weekend course for which the Massey Course Controller was linked by satellite, at which problems and issues could be aired; he therefore became familiar with the students' needs related to such a course.

The second stage was the adoption and adaptation of the Massey materials as the basis for USP's own course, which was introduced using the same materials with some modifications but in the name of USP.

The third stage was a substantial redevelopment of the Massey University course by Massey University staff member seconded to USP. The USP course would have credibility with the Professional Accountants Association in Fiji and elsewhere in the region, and become the basis for more advanced courses leading to a recognised professional qualification.

- b) **Religious Studies** is a more recent development. Massey University has a well established foundation course dealing with the phenomenology of religions; its focus on New Zealand as a multi-cultural and multi-religious society makes it relevant to USP's cultural situation, but with some differences. The Massey University Course Controller was therefore invited as a consultant to join academics at USP devising such a course for internal and distance education purposes. His course materials became resource materials for originating a new USP course; he reports that his own course gained considerably in its multi-cultural aspects. It is taken by some Islanders who are New Zealand residents.
- c) **Nursing Studies:** many nurses from the Polynesian countries of the South Pacific have been trained in New Zealand, or under the New Zealand aegis at home. Although the South Australian College of Advanced Education has been prominent in secondments to and from for mid-career nursing for Fiji and Tonga, it is expected that the Massey University materials will be used to develop courses at USP, perhaps in conjunction with Australian models, and perhaps benefitting from the ASPESA Nursing Studies Interest Group, formed at the 1985 ICDE/ASPESA Conference.

One essential factor in these relations is the positive disposition towards its Polynesian neighbours that is common in New Zealand universities, the interchange of people between New Zealand and its Pacific Island neighbours, and New Zealand's own growing consciousness of its multi-culturalism. Many New Zealand academics, including several from Massey University, have served at USP, seconded by New Zealand aid and with the University Grants Committee support.

Some conclusions can be drawn from these experiences:

- that the intended outcome, at least at foundation level, is a course which is essentially characteristic of the recipient institution, rather than a reach-me-down version of the original product;
- that it involves the recipient institution understanding and modifying the original pedagogical basis as well as the language and examples of the content and of the course material and integrating into the learning process its own supportive styles and resources.
- that this process may involve several phases of development.

2. Massey University - Open College, Hong Kong, of University of East Asia, Macau

For its business courses, the Open College (see Asia paper) turned to Massey University, where a Bachelor of Business Studies degree already existed as a distance education programme; this earned associateship of the New Zealand Society of Accountants, and recognition in other Commonwealth countries. The programme in accountancy has a particularly demanding set of courses which few except the best Massey University internal students complete within the three year minimum time and which therefore take extra-mural students much longer. It is modular and consists of 21 papers; a core of 10 papers in key aspects of business (accounting, economics, statistics, computing, law, marketing, administration), on which is built a sequence of other papers to make up a 'concentration' or 'major' (in accounting or personnel management, or economics, or industrial relations, or business psychology, or marketing, or agribusiness, etc). By aggregating courses in the core, a pattern of degree was designed, containing content comparable to a full BBS. Massey agreed to make materials available to the Open College to reprint in its own format. No fee was charged, although ex gratia payments were made to Massey for its administrative services. It was agreed, however, that Massey course controllers should be appointed as external assessors for their courses for a couple of years at least, to assess sample papers at the assignment and final examination levels, and paid a fee for those services. An initial batch of materials was provided for courses, with papers for advancing 'lines of study' (as 'majors' were to be called) to be negotiated subsequently. In those early stages, it was beneficial to have inputs from the University of East Asia's Professor of Management Studies, who had been Foundation Dean of Business Studies at Massey University and therefore responsible for the development of its BBS degree. Later Deans of Business took a keen interest in the project. But while acknowledging that Open College graduates would be considered, as would other good business graduates, for acceptance into post-graduate study, Massey University otherwise minimised its role in this arrangement. It was considered a piece of goodwill towards a new institution in the distance education community and towards a respected recent member of the Massey University academic community. Otherwise the University avoided becoming heavily

involved; it expected its academic staff to limit their activities as external assessors to duties that are a normal facet of an academic's work; it expected the Open College to negotiate for itself the use of reprint journal articles or book quotations on which Massey University courses sometimes depend heavily, or to negotiate the incorporation of republication of text books required as the basis for courses. A protocol rather than a contract was the basis of the initial arrangement. This was to serve as a guide for later negotiations for study materials to be conducted thereafter between the Open College and the Faculty of Business.

3. Massey University - Visayas State College of Agriculture, Philippines

Massey University's relationship with ViSCA involves the transfer of experience and technique; no distance education materials have been involved. ViSCA turned to Massey University for help in mounting a post-graduate programme in agricultural extension. The method was an exchange of visits: Massey sent its appropriate agriculture department staff, its senior agricultural extension teacher, the extra mural resources officer, an instructional technologist who has now become Director of its Television Production Unit, and the University printer; ViSCA sent to Massey a team of instructors who would eventually design materials. Between them, they planned course design, production and delivery systems suitable for ViSCA's situation. Funding came from the New Zealand Ministry of Foreign Affairs as an aid project. While the change of Philippines government has resulted in a change of President at ViSCA, other key personnel for this project remain and it continues. It is essentially a consultative and training role, based on expertise in several separate departments which integrate for ViSCA's purposes. It is not unlike other consultancies in agriculture in which Massey University engages, although few others have had a distance education focus.

University of the South Pacific

Besides the relationship with Massey University, USP has other relationships in distance education:

- PEACESAT/NASA/University of Hawaii: these agencies made available the ATS-1 satellite and enabled USP to pioneer in the Pacific the use of satellite communication for voice and digital, but not video, transmission for distance education.
- Deakin University: its materials production techniques were familiar to Dr Kevin Livingstone during his stay at USP, and he continued satellite contacts between USP and Australia (and PNG and New Zealand), on ATS-1.
- Several other Australian distance education institutions have had links, through ASPESA, including Darling Downs Institute of Advanced Education.
- UK Open University has provided several visiting academics.

Recently, a link has been established between USP and UPNG. USP is now building up a range of courses in law. It has no law faculty, but offers a few courses in applied law in its school of social and economic development. UPNG has a faculty of law. A law unit of USP is being established in Vanuatu where USP will teach, in both modes, foundation law courses from which some students will proceed to UPNG to become lawyers. Many other students are, however, mature adults whose professional skills can be enhanced by studies in applied law without completing a degree. USP does not intend to teach a wide range of applied law courses but to endorse and act as a broker for those already available at a distance, some from Massey University (advanced commercial and organisational law, law for regional planning and for social work), and some from elsewhere, perhaps Macquarie University in Australia.

USP has also helped the Pacific Adventist College in PNG to develop an Extension Services Department. The college (only in its third year of operation) started an Extension Services Department at the beginning of 1985. It is only offering preliminary work at present, helping some prospective students to qualify for entrance. It has some 140 students enrolled at present. It is about to launch a special two-year programme in Administration to help national leaders in their church offices and schools, which will involve two four-week residential blocks, and two years of part-time work through the Extension Service. About 50 are expected to be involved in the programme. The College received considerable help from the USP in planning the extension work, and the USP also allowed it to adapt some material. The South Australian College of Advanced Education in Adelaide accepted the head of the extension programme on their course for preparing practitioners in distance education.

New Zealand Correspondence School

The School has close links with the Technical Correspondence Institute, which involve exchange visits of staff, and discussions on collaboration for in-service training of staff. TCI tutors are largely from industry and unused to teaching, and thus TCI has had to develop efficient tutor training, which is of interest to the school. The two institutions have also diverged in their use of technology, with TCI using Apple Macintosh wordprocessing and the school using a mainframe computer for administration: the two institutions are looking at ways of plugging into each other's facilities.

Another form of collaboration is with Otago University's teleconferencing facility. At present, the School brings its regional teachers together once a term. The School estimates that for the same cost they will be able to hold weekly discussions of one hour. Otago will provide the facility free, although the School will have to pay a small hourly rate during actual use. In return, other adult education groups will be allowed access to the equipment and room. The School is also looking at the possibility of improving telecommunications links with its supervisors in ordinary schools.

Internationally, the principal belongs to the Australian Correspondence Schools Principals Association, along with COES of Papua New Guinea. The members hold teleconferences at least three times a year, discussing problems or teaching materials. Sometimes conferences are on particular topics, and will involve specialist staff; early childhood education and special education are recent such topics.

The School has made a considerable contribution to the development of distance education worldwide. Significant development work in the past has included links with Zambia, Botswana, Jamaica and Indonesia. In recent years, contact has been largely within the Pacific region. Affiliation with the Unesco APEID programme has led to numerous visits from regional personnel, from one hour calls to three month fellowships. These have been particularly concerned with course development and production and broadcasting. There have been advisory contacts with PNG, and a small number of students enrol from the Pacific Islands, in cases where a small school is unable to offer a subject.

Elsewhere, the School probably has an informal influence. It receives frequent requests for samples of its materials, which included recently a strong interest from the Falkland Islands.

POSSIBILITIES FOR NEW INITIATIVES*

1. The extension and improvement of telecommunications in the Pacific basin could stimulate a metamorphosis in education in the region. Joint regional access to satellite audio facilities linked with teleconferencing equipment shared between institutions and their students could bring dramatic change and are within reach. In Fiji, for example, the school broadcasting service is run down and teachers are badly in need of retraining or upgrading. The USP already has audio satellite links. If this facility were made available to schools the quality of education might improve. Change is largely a matter of awareness and will-power, of providing a stimulus that will help teachers to make better use of the facilities that are available. Co-ordination in media use could stretch from university through school to non-formal level; currently equipment dedicated to the Unesco family life education project may be found cluttering the teachers' resource centre: sectional divisions inhibit sharing. A better use of existing facilities, a strengthening of the infrastructure, and a visible demonstration of the potential of media to decision makers could be a stimulus for change not only in Fiji but in many other islands in the region.

2. As elsewhere, training for distance educators is seen as a priority, especially more locally based training.

* This section contains conclusions drawn by Janet Jenkins from suggestions and comments made to her in the course of discussions on this paper.

3. Certain problems are prominent in small countries, where finance is particularly tight. The college of External Studies, Papua New Guinea, for example, has a small staff and writers are usually appointed on two-year secondment. Assistance is needed to support these writers and their training. The College also needs assistance with upgrading their wordprocessing equipment and their print shop. A support project similar to the USM/OLI link described in the Asia paper would seem to be in order to assist with institutional development.

4. There is some interest in projects to develop the use of media for non-formal education in the island communities. For example, plans are under discussion for health and agriculture learning materials for Papua New Guinea. These would be print and audio as PNG has no television. It is also short of manpower to develop the project alone, and the way appears to be open to seek partners for a collaborative international project. This could have three elements:

- the joint development of a plan and materials;
- the joint development of appropriate communications infrastructure;
- staffing and staff development to implement the programme.

Acknowledgements

This paper was widely circulated, and contributions and comments received have been incorporated. In addition, the paper has been discussed with a number of individuals from the region. The sections on Papua New Guinea and New Zealand include short extracts from country papers presented to the Asian Development Bank Seminar on Distance Education (Bangkok, November 1986) and the authors are thanked for permission to use their papers in this way. The following are also thanked for their help.

Barrie Green, ASTU

Charles Callaghan, NZTCI

Douglas Gunn, NZCS

Peter McMechan, Otago University

John Paul, COES PNG

Lavenia Kaurasi, Fiji

Kevin Livingston, Darwin Institute of Technology

R K Wilkinson, Pacific Adventist College

PAPER 8

OPEN AND DISTANCE LEARNING IN THE UNITED KINGDOM

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CHAPTER EIGHT

Introduction

This paper is divided into two main sections. The first section deals with patterns of development. Discussion includes a brief analysis of the main educational needs and priorities in the United Kingdom, the development of distance and open education and the way it relates to educational needs and priorities, and a brief review of gaps and failures in the open and distance education response to educational needs.

The second section deals with co-operation in distance and open education both inside the United Kingdom and with other countries.*

PATTERNS OF DEVELOPMENT

Educational needs, priorities and problems in the United Kingdom

The United Kingdom in recent years has been very concerned about ways in which vocational education and training can be made more widely available at times and in places where it will have most effect. Open Learning, including distance learning, and modular systems have been widely promoted as means to overcome barriers. There is considerable activity though most education or training offerings through open learning are small scale relative to their more conventional counterparts. The majority of institutions remain traditional and conservative, and primarily based on a front-end model which centres on the needs of school leavers.

As in the rest of Europe, the United Kingdom industrial base is undergoing radical change. There is marked decrease in numbers of people employed in traditional primary and manufacturing industries. There has been an increase in the numbers of people employed in the service sector and information technology-related industries. There has been a demise of the apprenticeship system over the past 10-15 years without any major replacement. This failure to invest in human capital over a long period has been one of the primary causes of Britain's inability to compete and has exacerbated the current skill gap. Despite the expansion of the tertiary service sector in general, and Information Technology-related areas in particular, difficulties arise in determining exactly where the needs lie. The recent government-sponsored Open Tech Programme (OTP) used an 'employer led'

* This paper takes a broad view of distance and open education in the United Kingdom; it does not include a detailed description of the British Open University as it is now so well known and full accounts are available elsewhere.

manpower forecasting approach simply because the best data available at the time, ie the Warwick forecasts, were deemed too general and too broad. However, manpower forecasting has been heavily criticised and the employer-led approach in particular deemed least accurate of all for determining total system needs.

Despite the shift from manufacture to newer industries, it is not sufficient to provide jobs for all of the people available for work. There has been a consequent and substantial increase in the number of people unemployed. This is particularly marked among young people.

Demographic factors too have their effect. The birth rate has dropped substantially over the last twenty years and despite recent slight increases, the overall trend is towards a smaller population with a substantial proportion of senior citizens.

In technological issues, in changes in market patterns, in growth of developing countries active in traditional UK markets, and in many other factors, the pace of change has been increasing very rapidly.

The combined effect of these factors is complex, but it is clear that the UK needs to provide much more effective systems to help people cope with change in many aspects of their life, and that education and training have a considerable part to play in giving people the help they need. There has in fact been some growth in the demand for education, particularly part-time adult education. For example, there are nearly 40,000 part-time adult students at Manchester University alone, compared with only 15,000 in full-time education. Other universities are also active in developing continuing education. However, it has been argued that the programmes set up to further continuing education tend to favour already socially privileged groups. The needs (in as much as they are understood at all) of less privileged groups are not met in a systematic way. The OTP was particularly cognisant of this problem, making special provision for what it calls 'special groups'. However, few of the projects made any real progress on this Steering Group directive.

Despite these major and fundamental problems facing the United Kingdom there are many barriers to the acceptance of education and training. The primary barrier to the acceptance of an important role for education and training in supporting change is attitudinal. In the United Kingdom both education and training have a "bad press" and are not recognised by a substantial proportion of the population as having relevance.

A second major barrier is to do with organisational inertia among those groups currently charged with providing education and training opportunities. There is always a tendency to want to do what has been done in the past and avoid changes which are uncomfortable. In many cases these attitudes are bolstered by administrative arrangements, both regional and national, which seem difficult to change. Among the most important of these administrative factors is the arrangement for financial control based on discrete financial years, unrelated to any development programme, and without easily accessible systems to

transfer money from one financial year to the next. As a consequence of this it has been extremely difficult for organisations in the public sector to invest in developments and recoup their expenditure over subsequent years.

There are some psychological barriers also among providers which are difficult to change. There has always been a strong divide between education and training, and a great deal of suspicion between the two sectors. Recent work by both Manpower Services Commission and the Department of Education and Science on joint projects has gone some way to overcoming the suspicion, but it is deeply rooted. There is also a similar deeply rooted suspicion cutting across private sector and public sector activities.

There are many other more detailed constraints to which have been identified in various papers from the Council for Educational Technology (NB Working Papers 14 and 19), and more recently from the Manpower Services Commission (NB 'Open Tech Task Group Report' and papers on the adult training initiatives).

The booklet published by the Manpower Services Commission and the National Education and Development Organisation entitled "Competence and Competition" points out, by implication some of the lack of focus in the United Kingdom on aims. This lack of focus has made it possible for outdated assumptions to remain unquestioned. For example, there is still a major difference between the training of management who are trained to be independent and self-reliant, and the training of other levels where the training is task-related and does not encourage individual enterprise.

In summary then, the United Kingdom is facing major industrial and structural changes in its population. Education and training are widely perceived among policy makers as having a significant part to play in helping the United Kingdom respond to the need for change. Nonetheless there are many attitudinal barriers, both among users and providers of education and training, throughout the United Kingdom society standing in the way an acceptance of education and training as major change engines.

Development of Distance and Open Education

The development of distance and open education in the United Kingdom has a long history. During the latter half of the 19th Century there were many drives towards the improvement of access to education which led not only to the establishment of a state system of schools but also to the recognition that adults as well as children needed education and training. It was in this environment that the City and Guilds of London Institute was set up and provided examination systems across a wide range of technical and commercial subjects. In 1849 the University of London established syllabuses and examination procedures for external students and in 1958 set up statutes to allow registration from anywhere in the world. A number of professional institutes also established arrangements for examination.

Given the availability of examinations and examination syllabuses leading to awards, a number of private individuals established correspondence colleges to provide distance teaching for people who wanted to take advantage of it. During the first half of the 20th century correspondence education became a major contributor towards opportunities for second chance education in the United Kingdom. While statistics have been hard to come by and very hard to validate because of the secrecy of many correspondence colleges it has been estimated that as many as 350,000 students per year enrolled in correspondence college courses at the height of their popularity.

While the protagonists of correspondence education argued strongly that it provided opportunities for people outside major conurbations, the statistics in fact point to a concentration of students in areas where educational opportunities are already well developed. An exception to this is Scotland where the very wide dispersion of population over a large geographical area has encouraged the development of a wide diversity of correspondence courses operated both by private and public institutions.

Despite this very large market, standards of correspondence education were generally low and a number of private correspondence colleges were guilty of excessive commercialism which led to a partial discrediting of their operations. Attempts were made by the establishment of a Council for the Accreditation of Correspondence Colleges to develop some control over standards but without great effect.

Against this background in 1963 a new institution, the National Extension College, in collaboration with Anglia Television, started an experiment called the Dawn University which soon developed into collaboration between the BBC and the NEC in linked correspondence and broadcast courses. These initiatives attempted to raise the standards of distance education.

The establishment of the Open University in 1969 probably had the most significant effect on standards of all. The Open University from the outset had a commitment to the highest standards of course design and production using a wide range of media including broadcasting. An Institute of Educational Technology was established to help devise standards of presentation. The impact of the Open University and, to a lesser extent, the National Extension College, has been dramatic world-wide on the standards now required of distance education. Other correspondence institutions have followed the market leaders and standards generally have been rising. Open Universities have been established in many countries building on the OU experience. The multiplication of such institutions has led to a great deal of staff exchange as well as development of substantial research activities in distance education and its methods. Most important of all, the high standards set by the OU have made distance education credible among governments, employers, academics and people in search of educational opportunity.

Many other public institutions such as colleges of further education, colleges of higher education, and universities are now also entering the distance education field and producing their own specialist courses in particular areas. Together with the public and private correspondence and distance education institutions they provide a major distribution system for education and training throughout the United Kingdom and, in many cases, throughout the world.

Most recently colleges of further education, higher education and adult education, as well as many large companies, have become involved in open learning. This uses the techniques of distance education coupled with a variety of tutorial support techniques to overcome administrative, educational and social barriers preventing access to education and training.

The movement towards open learning parallels trends in education and training away from control of syllabuses and examinations by central institutions towards a greater involvement of the individual, parent, or employer in control both over course objectives and methods. There have been strong moves at all levels of education and training towards giving learners access to flexible supported self-study methods as opposed to the more conventional teacher/trainer led methods. These methods are seen both as being more responsive to the needs of individuals and the United Kingdom economy as well as being of lower cost.

At the present time the United Kingdom Government is laying great stress upon the importance of vocationally related education and training. The Government is using the Manpower Services Commission in particular as its engine of change. The MSC has been able to provide large sums of money to support the development of open learning (through the Open Tech programme), the development of vocationally related education in schools (through the Technical and Vocational Education Initiative - TVEI), and most recently its review of vocational qualifications which has led to new procedures for examinations and awards and the establishment of a National Council for Vocational Qualifications (NCVQ). Simultaneously the Department of Education and Science has been encouraging the local authorities and institutions with which it has direct contact to become much more aware of the needs of industry and commerce. It has funded a number of activities under the PICKUP programme to develop the marketing capability of local authority colleges of further and higher education. It has also funded a number of activities to help long-term unemployed use education to develop new and more marketable skills through the REPLAN programme. These programmes are having substantial effects on the attitudes towards training in larger companies, many of which are now increasing their investment in training. A key element in persuading companies to take part in these national programmes has been the emergence of open learning as an important training tool.

Undoubtedly the most significant recent development in open learning has been the funding by the Manpower Services Commission of an Open Tech programme. The programme was formally launched in April 1983 and

is due to finish in March 1987. During that time 43 million pounds will have been spent on more than 140 projects throughout England, Wales and Scotland. There has recently been an Open Tech development in Northern Ireland sponsored by the Northern Ireland Department of Education and the Northern Ireland Training Authority. (A successor programme will begin in April 1987.) The projects are of four main types.

- a) Operational projects have been set up to develop learning materials and systems in agriculture and horticulture, communication study skills, computing and office automation, construction and public works, development for trainers, electronic and electrical engineering, management and supervision, manufacturing industries, process technology and production, sciences and mathematics, and service industries. The materials they have produced vary enormously in complexity and in their use of new technologies. While most are based on print media, some make extensive use of computer-based training and interactive video. Most have tried to adopt visually attractive modes of presentation. These have in part derived from the work of the National Extension College and the Open University, but many projects have gone on to develop new and exciting variations of their own.
- b) Delivery Systems projects have been set up in sixteen centres to co-ordinate the provision of materials to various types of user. Delivery Systems provide advice on choosing learning material appropriate to a person's existing experience and sophistication as a learner. They provide advice on planning of study time, tutorial guidance and assessment of progress, access to practical training, and group discussions both on a face-to-face basis and in audio-conferences over the telephone. Many of the delivery systems retain banks of learning materials and have developed consultancy arrangements to provide local industry with training needs analysis. A number of private concerns are now also developing an interest in delivery of material to specific training groups.
- c) Practical training facilities have been established in twelve centres to provide access to "hands-on" experience using machinery and computers associated with various open learning schemes. Provision of practical training has always been a difficulty in open and distance learning and these centres have been set up to find ways to overcome the problems. Many other organisations are now learning from the experience of these practical training facilities and attempts will be made to spread the experience as widely as possible.
- d) Support projects have been established to help existing Open Tech projects make best use of the skills and experience available on open learning, and provide information and guidance on sources for materials and development services. Many of these support projects were established specifically to look after Open Tech projects but, as the Open Tech programme comes to a close (it

ends on 31 March 1987), these projects are developing services which can be made more widely available to other sectors of the education and training community.

More recently the Manpower Services Commission has announced its intention to fund a College of the Air. It is the intention that the new College of the Air will provide access to courses below degree level designed to improve vocational competence. These will be available through a combination of broadcasting on radio and television with local back-up provided by colleges and other learning establishments. The College will not be an institution. It will be a small unit, probably set up as a company limited by guarantee. It will have a co-ordinating role and bring together those involved with open learning, including Open Tech, broadcasters, examining and validating bodies, and colleges. Funds would come both from the Manpower Services Commission and from private sources. Its functions will be to:

- a) assess what it might do to meet vocational education and training needs and tailor its range of courses accordingly;
- b) arrange for the production and promotion of training material and associated broadcast programmes;
- c) ensure the availability of information and local students' support;
- d) exercise quality control over the learning materials and support services;
- e) ensure that distribution, information and support services are in place.

A third major initiative concerns the development of Training Access Points. Training Access Points (TAP), have been set up to improve the accessibility of information about vocational education and training opportunities and to help individuals in companies make the best use of that information to meet their training needs. The initiative complements the Open Tech programme and the College of the Air development. The main objectives of the TAP programme will be to:

- a) bring together sources of information about vocational education and training provision and organise them into a coherent database;
- b) make that information readily available through computerised training access points (TAP) based in a variety of different locations including job centres, public libraries, high street shops and public and private education and training institutions;
- c) support that information with a network of advisory agents set up to offer information and advice and to help individuals and companies gain access to appropriate training or further guidance.

The first pilot projects are taking place in 1986/87 and further developments will follow.

It is worth pointing out that a significant proportion of these developments make some use of innovations in technology and computer technology in particular. Computer technology has been seen as a significant tool to add to the armoury of the educator and trainer. National information databases are being set up to deal with many different educational and training needs. The TAP initiative is attempting to link many of these databases together to improve access to the very wide range of information now available. Computers are increasingly used as devices to present instruction which may be extremely sophisticated and responsive to individual need. The development of expert systems technology will enable computers and associated peripherals to be even more responsive to needs of individual learners. The open learning movement is preparing the ground for the acceptance by teachers and trainers of different roles in relation to learners. Teachers and trainers will need to be more active in counselling and provision of study guidance and take a much less significant part in the process of instruction.

All of these developments have great relevance for the main needs, priorities and problems facing the United Kingdom as set out in the initial paragraphs of this paper. In particular the open learning and new technology applications developed in the last three to four years can be provided almost anywhere and make education and training available to anyone who needs it at times which are convenient and by means which suit individual circumstances. The use of new technology will raise the awareness of those using them of the importance of technology in dealing with rapid change. The existence of materials and the public awareness generated by the Manpower Services Commission has made it much more difficult for educational and training institutions to resist pressures for change in their own forms of provision.

From 1963 with the formation of NEC, the UK has, without question, played a leading part in the development of open learning practice. The OU and Open Tech have spread that influence through many international contacts and developments.

Gaps and failures in the distance education response to educational needs

Despite the major success of open and distance learning in recent years in the United Kingdom there are many who are concerned about the concentration on vocational education and the forms of funding adopted for it.

Many of the MSC sponsored initiatives lead ultimately to provision which offers little real control to the user. The substantial funding available in the initial stages of development of projects has encouraged producers to develop high quality but costly products. This has inevitably meant that a number of key groups are disadvantaged in relation to the availability of training provided by these means. In

particular those who are unemployed and those on low incomes will find it difficult to afford these open and distance learning routes to education and training.

The Government's thrust in recent years has been on vocational education and training and little has been done on the more informal adult education and community education provision. Nonetheless there are many groups who would benefit from access to appropriate education but the energies of course providers are being diverted from this important area of work to the more easily funded work on vocationally related activities.

Resources from the government have been substantial. The Open Tech alone has spent more than £43 million in its four year programme. However, it is not clear that the type of control exercised by MSC has led to the most beneficial results for UK. While data is hard to come by because of the relative 'youth' of most Open Tech projects some issues are clear.

- a) While the Open Tech Programme had as an implicit aim the opening up of the system as a whole, in practice the need to produce results quickly led to an emphasis on product rather than process.
- b) The pump-priming strategy which put money into projects with a view to their becoming self-sustaining activities at the end of their funding undermined the first aim. This was particularly so with projects in public sector institutions whose grasp of business and marketing issues was rudimentary and whose organisational structures were not designed to facilitate the activities of small businesses as parts of their activities.

Collaboration was one of the key issues for Open Tech and was referred to many times in OT documents. Nonetheless projects were forced to compete against one another. A classic case was the setting up of delivery projects half way through the programme. Many operational projects had, by that stage, begun to market directly to end users or had set up other marketing channels through delivery agents of their own choosing. Prices had been fixed in relation to those channels. Insertion of delivery projects, also wanting a 'financial cut' to ensure their survival, squeezed margins and put both the operational projects and delivery projects at risk.

Computer based training (CBT) is widely regarded as having importance and may be making significant progress in terms of support and materials production. However, there is, as yet, very little evidence to suggest that it is better or even as good as traditional forms of teaching. There is need for more research here.

Information technology (IT) is taught mainly by face-to-face methods in the UK. The Open University course, TD200, Introduction to New Technology, currently under development, and due to be offered for the first time in 1988, is a rare exception.

Measurement of needs and manpower forecasting issues generally are fraught with difficulty. There are areas of need which are felt to be of importance but as yet have not been tackled by open learning. These include the four priority themes of the European Commission, namely:

- a) "meeting the needs of enterprises, in particular small and medium sized undertakings, for example by experimenting with new approaches aimed at familiarising and retraining management in the implications and potential uses of new information technologies;
- b) preparing young people for working life, in particular those whose qualifications are inadequate, through training measures designed to develop basic understanding of the main applications of micro-technology in data processing and communications and to equip young people seeking work in micro-electronics related occupations with the necessary job skills;
- c) helping skilled workers to retain or regain employment by means of measures to retrain production and maintenance staff affected by the automation both of manufacturing processes and of management processes in the service sector;
- d) the training and retraining of women by innovative training measures aimed at facilitating their access to developing occupations in the field of technology where they are traditionally under represented".

(Slightly modified: EEC COM(85)167 FINAL, 1985)

There is also a need to look into training people to cope with the problems of change. BTEC is among the bodies interested in this but as yet distance education methods have not been applied.

CO-OPERATION IN DISTANCE/OPEN EDUCATION

The range of co-operative activities in the United Kingdom is extremely large and covers bilateral and multilateral exchanges of information, materials, co-operation on training, personnel exchanges, joint course production, and joint programme development.

In recent years the exchange of information has become much more significant with the development of electronic information databases. A number of national information databases have been established which draw information freely from a very large range of institutions and providers. Among the most significant of these are:

- a) ECCTIS which provides information nationally about vocational further education. The system is accessible through the PRESTEL network and currently can be obtained on a CD ROM system;

- b) the PICKUP database of detailed information on short courses available through the further education system is collected currently by Guildford Educational Services. The information is available on a Microfiche system but is now also linked with the EOCIS database;
- c) the MARIS project of the Manpower Services Commission Open Tech programme provides details of materials produced for open learning and a wide variety of information on other resources associated with open learning. The MARIS system is now available on the PSS network through PRESTEL.
- d) There are many other local and regional databases too numerous to mention in this paper.

Materials exchange takes place to a significant extent among United Kingdom institutions.

The Open University has been a leading influence and many of its materials are sold for use by other institutions. They have been used to support courses in universities as well as other kinds of further and higher education institution. The quality of OU materials has had significant effects on standards now expected in distance education.

At the lower levels some correspondence colleges, notably the National Extension College (NEC) and Wolsey Hall, have made their learning materials available at specially reduced rates to colleges of further education and schools to support teachers in those institutions wishing to offer materials based systems both in resource centres and in locally supported distance education. The best known of these arrangements is FlexiStudy developed by Barnet College of Further Education and NEC which has been adopted, albeit in most cases on a small scale, by some 150 institutions.

The National Extension College and Wolsey Hall have both co-operated with further education colleges in the development of learning materials. The colleges have produced the materials for publication and the correspondence colleges have undertaken to publish and distribute those materials much more widely. Examples include mathematics, science and psychology. The National Extension College (NEC) has been particularly active in this form of collaboration and has supported a number of Open Tech projects.

The Open Learning Federation (OLF) is an organisation which interlinks colleges of further education engaged in open learning activities. Among its various activities is the exchange of materials produced in different colleges for use throughout the Federation.

The Open University is well known for its involvement of broadcasting in its activities. Less well known, but of great interest, is the extensive collaboration of NEC with various broadcasting activities. It is important to note that, unlike the OU, NEC has no direct organisational link with broadcasters but has, nonetheless, managed to

attach its activities in productive ways to programmes. Notable among these have been programmes for unemployed young people ('Just the Job') continuing education (Botanic Man, the Disraeli project and many others) and new technology (support for BBC micro-technology programmes).

Collaboration on curriculum development in distance education is less frequent though these have important developments in business education.

Henley College, after an initial attempt to work with the Open University, developed an MBA programme in conjunction with Brunel University. This programme is notable for the high quality of its material and its positive use of video material.

Wolsey Hall has worked with Warwick University in the production of a distance learning MBA programme. This is particularly interesting as an example of a commercial institution collaborating with a public sector university.

Eleven polytechnics, including Birmingham Polytechnic in a co-ordinating role, have collaborated in the development of BA in business administration validated by CNAA. The course materials are partly finished and it is hoped that the course will begin to recruit in 1988.

In all cases the overseas link is of importance. Both Henley and Wolsey Hall and their university collaborators have established formal tutorial arrangements with overseas institutions. In Hong Kong, for example, Henley has links with City Polytechnic and Wolsey Hall with Hong Kong Polytechnic. Both Henley/Brunel and Wolsey Hall/ Warwick are able to customise their materials for specific users.

There are other important MBA distance education programmes at the OU and at Strathclyde University.

There is considerable co-operation in training in many institutions. The training, for the purposes of this paper, can be broken down into two main headings, those involving training of trainers and those involving training of end users. Some examples will show the range.

Dundee College of Education has for many years provided materials for its own students engaged in teacher training courses. Since 1980 the college has offered a distance teaching course for training individuals interested in distance learning. These materials have been made available to other institutions and Dundee has entered several bilateral agreements where it works in conjunction with another institution, Dundee providing the material, and the other institution providing tutorial support.

One of the outcomes of the Open Tech programme has been willingness of companies to exchange training materials. So it is, for example, that B & Q, a large retail do-it-yourself chain of shops, is not only developing its own training materials for training trainees and making

those available to other institutions but using materials produced elsewhere for the training of its own trainees. This practice is now widely developed.

Collaborative ventures are wide ranging through bodies such as British Council and TETOC. Some examples are given below.

The London University external system, which currently has some 24,500 students studying in six main subject areas, has probably had the longest history of cooperation and collaboration with other educational institutions. It has shown considerable flexibility in adapting its procedures to accommodate to the needs of other bodies. From 1945 to 1971 the external system developed special relationships with university colleges in Africa and the West Indies which help them develop as academic institutions. It is currently re-examining its work fundamentally and exploring opportunities for new types of relationship with established universities world-wide.

Plymouth Polytechnic has links with the World Maritime Colleges. This is an example of an already established network.

The British Council is currently furthering the use of open learning methods and materials by encouraging technician training institutions in developing countries to adopt OTP products and processes. The recent use of the 'Scitech' Laboratory Technicians Course on its Direct Teaching Science Project in Egypt is an example. The materials are being translated into Arabic; this should facilitate their take up in similar settings, whilst generating first hand experience of the nature of the problems involved.

Personnel exchanges. The Open University has practised personnel exchanges extensively with other institutions both inside the United Kingdom and overseas. These exchanges have been influential in the establishment of open learning initiatives in many countries as well as feeding back to the United Kingdom a much broader perspective of need.

Collaboration is not always as easy as its protagonists sometimes suggest. Key problems which have emerged include financial issues, cultural issues and organisational issues.

In some instances exchange control measures may prove restrictive preventing the movement of materials, for example Nigeria.

The problems of cultural adaption are frequently underestimated, this is a major barrier to the effective dissemination and utilisation of open learning materials. Project managers in the Open Tech Programme display a considerable level of naivety in assuming that the level of adaption required for UK materials to be effectively used, is in the order of ten per cent.

A recent survey conducted by the British Council into the likely up take of OTP materials overseas concluded that sales were not expected to be significant on account of the comparative inexperience of those

involved and the nature and diversity of the relevant problems.

The infrastructure of many developing countries is insufficiently developed to permit the widespread adoption of certain forms of technology currently taken for granted in the Developed regions, for example telephone tuition.

Often correspondence texts are written using the 'speech on paper' style which is particularly difficult to translate. Even in countries where English is the lingua franca adaptations are necessary if texts are to be readily understood.

PAPER 9

THE COSTS AND COSTING OF DISTANCE/OPEN EDUCATION

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1. INTRODUCTION

1.1 This report deals with the purpose, problems and experience of costing distance and open education projects.

1.2 The purpose of costing is

- to make explicit the costs involved or likely to be involved in the project or activity and the differential cost arising from any changes in that project or activity
- to enable cost-efficiency comparisons to be made between different ways of effectively achieving a given end.

1.3 Identifying the costs of an activity or project should help decision-makers choose between alternative courses of action. Problems of choice include:

- decisions on capital expenditure
- decisions on whether to do something oneself (eg. print texts) or pay someone else to do the job for one (eg. a printer)
- selection of media (eg. radio vs. audio-cassettes, television vs. texts)
- selection of distribution channels.

Cost will not be the only factor governing choice.

1.4 Unless the fundamental variables affecting the costs of a distance or open education system are identified, and the relationship between costs and volume of activities understood, there is a real danger that:

- the costs of a project may escalate because, for example, the choice of medium is inappropriate to the volume of students, or the infrastructure costs too great for the project to carry and remain cost effective. There may be cheaper (more cost-efficient) ways of achieving the same end as effectively.
- the resources available may be critically insufficient in kind, amount and timing to support the defined objective(s) of the institution or project, with consequential serious implications for it.

1.5 It is obviously much better to identify the costs involved in a project and the way they behave relative to volume and activity before one commits oneself to implementation. Costing can help here.

1.6 There is nothing intrinsically difficult about costing. Any project or activity can be costed. Unfortunately:

- quite often people prefer not to cost a project or activity, usually because they are afraid that publication of the 'real' costs of their activity will show up their inefficiencies, and thus precipitate budget cuts

- the way projects are costed in practice is frequently confused, ill-defined and inconsistent

- 1.7 This report assumes that those planning or managing a distance or open education project want to cost it properly. The next section outlines a framework for doing this.

2. FRAMEWORK FOR COSTING

- 2.1 There are two basic approaches which can be taken to costing: one is an economic approach, the other an accountancy approach.
- 2.2 The *economist's approach* distinguishes between variable and invariable or 'fixed' costs, and takes account of the capital costs of the project. Capital costs are generally annualised or amortised over the life of the equipment; and in some cases account is taken of the cost of depreciation and the opportunity cost of interest foregone.
- 2.3 The *accountant's approach* distinguishes between capital (or investment) expenditure and operating or recurrent expenditure, but investment expenditure is usually treated as a sunk cost. It is not normal budgetary practice (at least in the case of public funds) to include amortization charges in the operating expenditure budget. The approach taken in this report is orientated towards accountancy rather than economics, for reasons explained below, but the accountancy approach is modified somewhat to take account of the impact of capital on the cost of projects.
- 2.4 Appendix 1 discusses the economist's approach to costing in greater detail.
- 2.5 Appendix 2 outlines a modified accountancy-based approach to the costing of distance and open education. This is the method recommended in this report.

3. WHAT DOES DISTANCE AND OPEN EDUCATION COST?

- 3.1 A large number of cost studies have now been published on the relative costs and efficiencies of individual distance and open education projects. Of particular relevance, in that they provide abstracts, resumés and reprints of a number of studies, are:

- Jamison, D.T., Klees, S.J. and Wells, S.J. (1978) *The costs of educational media. Guidelines for planning and evaluation*, Beverly Hills, Sage Publications.
Contains sections on (1) the methodology of costing (pp.23-69) and (2) the costing of instructional technology projects using radio and television (pp.71-120), as well as (3) case studies (pp. 71-120) on the Nicaraguan Radio Mathematics Project, the Radioprimeria and Telesecundaria projects in Mexico, Instructional Television systems in El Salvador, Stanford University (USA), Hagerstown (USA), and the Korean Elementary/Secondary School Project.
- UNESCO (1977) *The economics of new educational media*, Paris, The Unesco Press (volume 1 of 3).
Contains (1) bibliography (pp.46-63); (2) abstracts of a wide range of studies (pp.66-93), and (3) case studies of Mexico's Radioprimeria*, Instructional Radio in Nepal, the El Salvador ITV System*, Mexico's Tele-secundaria*, a

programmed-instruction project in Central Africa, and a Swedish resource-based learning system. (Case studies marked * are extracts or abstractions from Jamison et. al (1978) - see above.)

- UNESCO (1980) *The economics of new educational media, volume 2: Cost and effectiveness*, Paris, The Unesco Press.
Contains (1) cost studies on the Ivory Coast primary education by television, Acción Cultural Popular in Colombia, the Kent Mathematics Project and use of video tapes in a teaching laboratory at the University of Surrey (UK), educational television in Maranhão and Ceara, Brazil, and on post-secondary distance education, (2) further abstracts (pp.257-275), and (3) a bibliography which supplements the one contained in volume 1 (pp.313-6).
- Perraton, H. (ed.) (1982) *Alternative routes to formal education: distance teaching for school equivalency*. Baltimore, John Hopkins University Press.
Contains case studies (pp.31-249) on the Minerva and Madurez projects (Brazil), Malawi Correspondence College, Mauritius College of the Air, Korean Air Correspondence High School, in-service teacher training in Kenya, and Everyman's University (Israel). There is a conclusion (pp.253-69) which summarises the findings, and an appendix which discusses methods of cost analysis (pp.273-7).
- Perraton, H. (1982) *The cost of distance education*, Cambridge, International Extension College.
Short discussion of costs and methods of costing distance education, coupled with summary of evidence drawn from a wide range of studies.
- Perraton, H. et al (1983). *Basic Education and Agricultural Extension; Costs, Effects, and Alternatives*, Washington DC, The World Bank.
Discusses the effectiveness of traditional methods of agricultural extension and basic education.
- Wagner, L. (1982) *The economics of educational media*, London, The Macmillan Press.
Discusses cost structures and factors affecting costs, drawing evidence from a range of studies.

3.2 Although the literature points to the existence of a wide range of studies, it is not easy to draw firm conclusions from them. There are a number of reasons why this is so:

- until recently, there was little agreement on methodology. Even now, and in spite of generalised guidelines on methodology contained in, for example, Jamison, Klees and Wells (1978: 25-62), Eicher et al (1982 : 41 - 53), and Fielden and Pearson (1978), there is no agreed methodology. Cost studies indicate, for example:
 - discrepancies in the use of projected (budget) vs. actual (final accounts) costs
 - differences in the treatment of costs - notably capital, which may be (a) ignored, (b) taken into account but treated as a sunk cost, (c) taken into account as an annualised cost, (d) discounted.
- problems in reflecting the 'true' costs of a system, and drawing valid conclusions from these. For example, some studies concentrate on institutional costs (those costs carried on the budget of the institution), while ignoring 'system costs' which fall on other people or institutions -for example, students, government where the finance is given to institutions other than the distance education institution. Many

distance and open education systems use the resources of other institutions at marginal cost (eg. the British Open University pays the marginal cost of transmitting its programmes on the national tv and radio channels of the BBC; the Universidad Nacional de Educacion a Distancia pays marginal costs for local centres). It is wrong to assume that similar costs will apply when a system is transferred from one country to another or from one setting to another.

- the costs of goods and services differ from country to country, making international comparisons difficult. Wage levels and the costs of imported goods can distort international comparisons.
- some institutions receive help in the form of international aid (technical assistance, goods or money). Such aid may enable strategies and technologies to be adopted which could never be supported using indigenous sources of staff, equipment and finance. Money may be available in the form of gifts or loans. Loans may be interest free or low-interest. The presence of such gifts or loans may distort international and inter-institutional comparisons.
- changes in price levels arising from (1) inflation within a country, (2) changes in exchange rates between currencies, and (3) relative movements in the inflation rates of two or more currencies all make comparisons between the costs of different systems difficult.
- there are wide variations in how any given medium is used (contrast the British Open University's broadcast quality television to the professional standards of the BBC with the standards found in TVI) and distributed. Consequently it is very difficult to draw conclusions about the relative costs of different systems.
- there are very few studies on the relative costs of different media choices. Perraton (1982 : 8-17) discusses some of the factors affecting costs of print, radio, audio-cassettes and television. Eicher et al (1982 : 55-64) summarise some of the main conclusions which can be drawn in respect of the costs of television, radio, computers and other media; Bates (1982:278-323) discusses options for delivery media, including the comparative costs of distributing 320 minutes of audio material at the British Open University through 'widespread' (i.e urban and rural) and 'metropolitan-limited' telephone conferencing, records, cassettes, flexi-discs, and radio, and van der Drift (1980) discusses the relative costs of various audio-visual media. But in general such studies only offer broad generalisations from institution-specific or country-specific studies, and are therefore of limited help in costing intranational and particularly international projects.

The costs of media

- 3.3 In spite of these difficulties, some general conclusions can be drawn in respect of the costs of media:

Print

There are four elements to the costs of print

- Development, text setting (fixed print), printing (variable print), and distribution.
- Development costs include the costs of writing, editing and graphic design. The costs can vary enormously. The most crucial decision here is whether one hires full-time academics to develop materials, or consultants who are paid on a contract basis. Full-time academics cost much more but Perry (1976 :91) argues that the results one obtains from them is superior to those obtained from consultants. The

arguments for and against full-time academics are rehearsed in Rumble (1986 c :127-9). Full-time academics may work as individuals or in teams. The latter approach is more expensive. Again, Perry (1976 : 91) argues that the team approach is superior to any other, though more expensive. Rumble (1986 c : 164-73) discusses the various approaches in detail, and the problems of teamwork in course development. Perraton (1982 : 12) makes the point that the cost of contract authors varies depending on 'supply'. In some countries, where a number of people might write a text, the cost may be quite reasonable, but in others, where suitable authors are hard to find, costs may rise enormously. Editorial costs may also be high. Use of contract authors, in particular, is likely to place a premium on editing. At the British Open University, for example, where the full-time academics are used for writing and preparing self-instructional texts, the input in terms of instructional design and text editing is fairly low. In systems using contract authors, editors may have much more to do.

- The costs of text setting vary depending on the method of printing used. Offset lithography from typed originals is generally cheaper than letter press printing from hot metal typesetting. Use of wordprocessors instead of typewriters makes the preparation of camera ready copy even easier, and can also affect authoring costs. Timmers (1986 : 18) comments that the use of word processors at the Open Learning Institute, B.C., Canada, cut the time taken to develop and prepare for production a page of text from 120 hours to 50. Where texts have to be handwritten, costs can escalate. The Allama Iqbal Open University, Pakistan, pays calligraphers on the same scale as university lecturer (Perraton, 1982 : 13). Some institutions prepare texts in more than one language, thus incurring the additional cost of translation (eg. the Sri Lankan Institute for Distance Education - now Sri Lankan Open University - prepared texts in Tamil, Sinhalese and English). Use of illustrations (adding costs of pasteup) can increase costs dramatically. Again, use of integrated wordprocessing, design and page setting packages can reduce costs here.
- The costs of printing also vary. Paper costs vary widely from one country to another, but there are also differences in the costs of printing. For example, the costs of the offset litho process are also affected by whether paper or metal plates are used. The former are cheaper but are only good for about 500 copies. The use of colour will also add to costs significantly.
- Distribution costs vary according to the amount of material being distributed, whether distribution is in bulk to local centres for collection by students or direct to the homes of individual students, and local circumstances. Variations in cost are so wide that it is difficult to generalise.

Printing costs are susceptible to economies of scale. If a course has relatively few students on it, one way to reap economies of scale is to print sufficient copies to last several years. Of course, this makes it much more difficult to change the material in the second (and possibly subsequent) year of use without having the problems of (1) errata slips, (2) deciding whether or not to pulp unused copies and print a revised version. Also, the costs of warehousing need to be taken into account where stocks are produced for several years use.

Television/Video-tape lectures/closed circuit television/film

There are two elements to the cost of broadcasting and video:

- Production costs of video-tape lectures and closed circuit television is much cheaper than broadcast quality television. Eicher et al (1982 : 55) suggests that the production cost of video may be as little as \$160 per hour while that of broadcast quality television may be \$50,000 or more (in 1980 prices). Broadcast

quality tv is more expensive for a variety of reasons. Some countries' unions have forced the rates of pay for broadcasting staff to high levels; the cost of equipment to produce broadcast quality tv is far more expensive than that used to produce video; and traditional companies and unions have argued that one needs more staff to produce broadcast quality tv than video. What constitutes broadcast quality television is itself the subject of debate. In the United Kingdom, for example, the television companies broadcast 3/4 inch Hi-band tape material. In the United States the Public Broadcasting Service broadcasts 3/4 inch Lo-band Umatic tape generated material, which is cheaper to produce. It is perfectly feasible to produce 'broadcastable' television material on Umatic cameras and tapew recorders at a production cost of less than \$1000 per hour.

- TV/video transmission or distribution costs vary enormously. The costs of terrestrial transmission over the air depends on whether a system has (1) to set up its own network, run it, and maintain it, or (2) can transmit on someone else's network. The cost of (2) can vary considerably depending on whether the system is charged (a) an economic cost per hour, (b) a marginal cost per hour, or (c) gets free access to airtime. (The British Open University, for example, benefits because it is only charged the marginal cost of transmission on the BBC's network).

However, video can be transmitted or distributed by other means including:

- Satellite DBS (Direct Broadcasting Services) to homes and study centres. This involves costs of an uplink to the satellite, use of the satellite (at full or marginal cost), as well as the cost of reception dishes at each site (local centre or student's home). The major variables here are the cost of access to the transponder (projects like SITE in India have benefitted from access at less than the real cost) and the cost of and number of reception dishes.
- Satellite to cable head, and thence to local centre(s) and homes. Here costs depend on the prior existence of a cable network.
- Use of video-cassettes, involving the cost of video-cassette players in either homes or local centres, and the cost of the cassettes themselves. The cost of a video distribution service varies depending on whether videos are given to students or loaned to students on a returnable basis. The cost is also affected by who provides the video-cassette player (student or institution). An internal British Open University study showed, for example, that to meet the needs of a course over four years:
 - a. it was cheaper to transmit an hour's material on the open-air network of the BBC (at a fixed cost for transmission of £737 per hour in 1984 prices) provided there were more than 936 students over the 4 year period (234 per year)
 - b. it was cheaper to give students a video-cassette (incurring the cost of an E-60 cassette, its copying, and one-way postage to the student's home, provided there were less than 526 students over 4 years (126 per year). If this option is chosen, all costs are student variable.
 - c. it was cheaper to loan students cassettes - incurring the cost of buying in a stock of cassettes, copying them, and paying the two-way postage to a student's home, if there were from 527 to 935 students over 4 years (133 to 233 students each year). Here, the cost of the stock of video-cassettes can be annualised, but the cost of postal distribution remains a student variable cost.
- Costs of tv or video reception are affected by the number of video-cassette players

or tv sets required, whether these have to be provided by the institution or are provided by the students, and whether or not they are run off electricity or batteries.

- Whether or not the production and transmission costs of tv and video are worthwhile will depend in part on the number of students served.
- TV is an expensive medium, particularly for poorer countries. It is difficult to justify unless electricity is available and a basic infrastructure (eg. maintenance services and trained manpower) available (Eicher et al, 1982 : 58). 'Educational television cannot be cheap and should not be recommended as long as a significant proportion of households are not equipped to bear a significant part of infrastructure fixed costs' (Eicher et al, 1982 : 58).
- For large numbers of students, use of video-cassettes is even more expensive than tv, but are much more effective, educationally speaking. Video cassettes are not as ephemeral as tv, can be replayed at will, and can be started and stopped at will.
- Film is even more expensive than video, and its significant use in education is 'probably doomed' (Eicher et al, 1982 : 60).

Radio and audio-cassette

As with television and video, there are two elements in the cost of radio and audio-cassettes - production and distribution:

- Radio production costs are cheaper than tv costs. Transmission costs are also cheaper. The British Open University nevertheless found that it was cheaper to provide students with non-returnable audio-cassettes (a student variable cost) than to transmit by radio (a fixed cost per hour) provided there were under about 1000 students on the course. Eicher et al (1982 : 58) are sceptical of the cost-efficiency of radio in any project where there is less than 2000 students. Radio can be strikingly cheaper than any other medium where the target audience is large (Perraton, 1982 : 15).
- Audio-cassettes are educationally more effective than radio, because they are not as ephemeral, because students can replay them as many times as they wish, and because they can start and stop the tape at will. They can be used effectively in conjunction with print ('listen and look').

Computer-based instruction

There are insufficient studies of the costs of computer-based instruction available to enable significant conclusions to be drawn. Costs per hour of student contact are generally high. Among the costs to be considered are the costs of equipping students with computer (including monitors etc.) and the cost of acquiring or developing software.

The cost-effectiveness of distance education

- 3.4 While comparative data on the relative cost of particular media is still scarce, there is plenty of evidence that distance education can be more cost-effective than traditional education.
- 3.5 The basic cost function of distance education is explained in Appendix 1. Broadly speaking, this function is:

$$T = S\pi + C\mu + F$$

where T is the total costs, S is the number of students, C is the number of courses or volume of materials, π is the unit cost per student, μ is the unit cost of the courses or materials, and F is the fixed costs.

3.6 Those planning a distance education system in the hope that they will reap economies of scale must ensure that:

- the variable cost per student is less than that found in conventional systems operating at a similar education level
- the number of students S is large enough to bring down the average cost per student to a level where it is lower than the average cost found in conventional educational systems. The average cost per student (AC) is found by using the formula:

$$AC = \frac{C\mu + F}{S} + \pi$$

- drop-out rate is kept at a reasonably low level.
- the number of courses or volume of materials C does not grow so large as to increase the value of $(C\mu + F)$ to a level where it becomes difficult, given the likely volume of students (S), for the average cost per student (AC) down to a level that is 'competitive' with the average cost per student in conventional educational systems.

3.7 These conditions have very significant implications for:

- the choice of media. In theory distance educators have a wide choice available to them. In practice this is often constrained not only by the absolute costs of a particular medium but by the effect its adoption may have on average student costs.
- market research - aimed at ensuring that sufficient students will be attracted to particular programmes at the institution to enable economies of scale to be achieved.
- the resources put into student services. Since these costs are a student variable cost, the degree of investment in student support services has to be weighed against the effect on the average cost per student (AC) and on drop-out rates.
- the resources put into the central infrastructure (fixed costs of the institution) are too large relative to student numbers.

3.8 The concept of cost-effectiveness needs to be distinguished from that of cost-efficiency.

Effectiveness is concerned with outputs : an organisation is effective to the extent that it produces outputs that are relevant to the needs and demands of its clients. It is cost-effective if its outputs are relevant to the needs and demands of clients and cost less than the outputs of other institutions that meet this criteria. This implies the existence of criterion for the measurement of effectiveness.

Efficiency is concerned with the cost of achieving outputs: an organisation is efficient relative to another programme if its output costs less (per unit) than that of

the other institution. It becomes more efficient to the extent that it maintains outputs with a less than proportionate increase in inputs.

Organisations can be effective but not necessarily efficient. For example, one can teach Russian to Italians very effectively (i.e. they learn to speak Russian like a native), but if the cost per student of doing this is five times the costs incurred by anyone else, then one is not doing it very efficiently.

An organisation may also appear to be more efficient than another one (i.e. its unit costs are lower) but the extent to which it is really efficient must depend on its effectiveness. The single-minded pursuit of efficiency (ie. cost-cutting) may damage the effectiveness of an organisation, thus diminishing its cost-effectiveness.

- 3.9 The fact that an organisation is cost-efficient in comparison with another does not necessarily mean that it is as cost-efficient as it could be. There may well be internal diseconomies which could be rectified without damaging its effectiveness
- 3.10 Distance and open education systems are not always more cost-effective than conventional educational institutions. Some of the major factors which may make distance or open education institutions less cost-effective than traditional ones are mentioned in paragraph 3.6.
- 3.11 It is important to point out that what is not being compared is the absolute cost of different systems. Distance education requires considerable investment before a single student can be enrolled - in both the development and production of course materials and the design and implementation of an institution's infrastructure. Thus Wagner (1977 : 360) pointed out that the ratio of fixed to variable course costs in conventional British universities was 8:1 whereas in the British Open University it was 2000:1. What is cheaper in distance education is the cost per student. What is compared is the average cost per student, full-time equivalent student, or student credit hour.
- 3.12 In summary, a distance system may cost more in absolute terms than the conventional systems with which it is being compared, but it can be more cost-efficient because it has sufficient students to bring the average cost per student down below that of conventional systems - thus making it more cost-effective.
- 3.13 Perraton (1982 : 21-35) shows:
 - that at the primary basic education level, some distance teaching systems with even quite small numbers of students (eg. Radioprimeria, Mexico with 2,800 pupils) had lower average costs than conventional schools, and students achieved comparable scores. Other systems with large student numbers (eg. ACPO, Colombia with 70000 pupils) were also cheaper. However, in the Ivory Coast the primary educational tv system had a higher average student cost than conventional systems, even though it had 231000 enrolments annually. (The cost of setting up a tv network and of paying teachers salaries near to those of regular teachers meant that even with its large student numbers the Ivory Coast ETV system could not bring the average cost per student down.)
 - at the secondary level, where there are more systems, some distance education systems (such as the Correspondence Course Unit, Kenya with from 340 to 2900 students each year) were more expensive than traditional systems. The Malawi Correspondence College (with 3800 students) had a cost per successful student that was more expensive than that of day schools but cheaper than that of boarding schools, while the National Extension College, UK, were cheaper than full-time classes and probably cheaper than evening classes. Yet other systems (eg. Tevec in Canada with 25000 students) were said to be cheaper than the in-school

alternative.

- at the tertiary level, the British Open University is probably the best studied of all distance education systems. The cost per graduate at the Open University (which has an annual enrolment of 20000 - 25000) is about half the cost of a graduate at a conventional university, while the cost per student per year is about one third that of a student in a conventional university. The relative advantage of the Open University is less when comparing the cost per graduate because it has a higher drop-out rate than conventional UK universities. The costs at Athabasca University, Canada (with an annual enrolment of 4400) is comparable to that found in conventional universities in Alberta. These costs are for universities designed to teach only at a distance. Universities which run distance education programmes 'pick-a-back' on conventional programmes can expand their student numbers for relatively modest costs per student by teaching the additional students at a distance.
 - in non-formal education, it is much less easy to draw comparisons between the costs of distance and conventional educational methods, not least because non-formal education does not lend itself to traditional methods of teaching what can be said is that where distance methods are used in large scale projects the unit costs are low.
- 3.14 Thus distance teaching can be cheaper than conventional methods, but this is not invariably the case. It is clear that achievement of high student numbers has a major impact on whether or not average costs per student are brought down to a level at which distance education is an attractive proposition. It is equally clear that distance systems have a high absolute cost and that it is cheaper to use conventional methods where student numbers are restricted. At which point a distance teaching system becomes cheaper per student than a conventional one depends on answers to the issues addressed in paragraph 3.7 above.
- 3.15 Two final points need to be made. Firstly, even though distance education can reap economies of scale, and even if the level of potential demand is such that one can envisage large numbers of students enrolling in a system, it is possible that the total cost will be such that a particular government or funding agency cannot contemplate starting to develop the system. Secondly, achieving a lower average cost per student may be economically and financially desirable, but it is a secondary objective. What is important is to teach students who perhaps cannot contemplate studying by other than distance or open means. The fact that certain students (eg. adults in full-time employment living in remote areas) can only be reached by distance means is in itself an important consideration in deciding to teach at a distance, and the comparative cost of doing this may be deemed irrelevant to the decision to establish a programme.

Cost of collaborative projects

- 3.16 Most distance and open education systems exist as autonomous institutions in their own right. No publicly available cost studies of collaborative projects operating at an international level (although such projects exist - eg. University of the South Pacific) or intranational level (eg. Università a Distanza, Italy; DIFF, German Federal Republic) have been identified. However, there is a cost associated with collaboration, and collaborative schemes may well incur costs which are not encountered in 'stand alone' schemes.

4. WHO SHOULD PAY FOR DISTANCE EDUCATION?

- 4.1 In considering who should pay for distance education, two dimensions need to be

considered: who pays, and for what.

What needs to be paid for?

4.2 Broadly speaking, the costs of a distance education system can be broken down into six elements:

- (a) the capital costs of the institution (eg. buildings, equipment, etc..) but excluding (f) below
- (b) the recurrent costs of running the institution (eg. administrative and managerial functions)
- (c) the costs of developing and producing learning materials and courses
- (d) the costs of teaching a course (eg. transmission, tuition, variable print, etc.)
- (e) the costs of general student support services not directly related to teaching a course (eg. counselling)
- (f) the capital costs of equipping a student to study (eg. television sets, computers, etc.).

4.3 We have seen that the costs of a distance education systems vary depending on among other things choice of media, level of service provided to students, cost of infrastructure, local prices, etc. The costs of teaching [(d) above] can be controlled relatively easily by consciously choosing how much support should be given to students. This will also be true of costs under (e) above. Decisions on media choice can also limit the capital cost of equipment needed by students to study [(f) above], as will a decision to locate equipment in a local centre where it is shared by a number of students, rather than put into students' homes. There are, however, a number of costs which are fixed irrespective of student numbers [(a), (c) and to some extent (b) above]. The average cost per student of (a) + (b) + (c) will depend on the number of students in the system.

Who might pay?

4.3 Various agencies might be approached to meet the costs of distance and open education systems.

- (a) national governments
- (b) international aid agencies
- (c) employers
- (d) students

4.4 In considering whether national governments should meet the cost of distance and open studies, a distinction is sometimes drawn between projects that aim to reach students in the normal schooling and post-secondary age-groups and those aimed at adults. It is sometimes argued that the costs of adult education should not be charged against public funds. A number of reasons are given for this, including, for example, adherence to a 'front-loaded' model of education which undervalues the education of adults; the belief that non-vocational adult education is essentially a private affair, of benefit to the individual, and hence the individual should pay; and the belief that the costs of vocational education and training should be met by either the individual or his/her employer. There is, however, another perspective that argues that the education of adults is not a luxury, that increased technological and social change leading to the obsolescence of knowledge acquired during the initial period of education and training means that individuals need 'continuous education' and that this it is not just an individual's or employer's responsibility to pay for this (since the capacity of individuals and employers, particularly small ones, to pay is limited), but also a government's responsibility.

4.5 Many governments are increasingly aware of the needs to train large numbers of

people in areas where there are acknowledged shortages of skilled labour, but they have been more reluctant to support the development of adult or continuing education in non-vocational and non-skills shortage areas. Thus the question of "who pays?" is linked to the question "what is being taught?".

- 4.6 It is clear that large employers frequently spend a great deal on training. Many have developed in-house distance and open education programmes to meet the needs of dispersed workforces. Such programmes may be wholly company-developed, or developed by a company in conjunction with a university or other educational institutions (eg. State University of California Chico in conjunction with Hewlett-Packard). Small firms, however, cannot invest in the development of programmes, and may have to rely on industry-wide provision which may or may not be entirely suitable to their need. Small firms also have problems in matching big firms in releasing staff for training purposes, and may also be reluctant to invest in staff training given that staff, once trained, may move on. (For example, it has been suggested that it is UK industry's reluctance to train computer staff that is one of the causes of national skill shortages in this area).
- 4.7 Individuals, while they may be willing to invest some personal resources in their further education and training, have to do so within the discretionary income available to them (ie. that income left over after the basic necessities of life for themselves and their families have been met). What constitutes 'discretionary income' levels is partly determined by the level of income of the target group, partly by personal expectations regarding what constitutes necessities, and partly by the cost of such necessities in the society in question.
- 4.8 Potential students have to set against discretionary income
- the recurrent cost of taking a course (fees, purchase of materials, cost of studying including postage costs, travel costs, etc.)
 - the capital cost of equipping themselves to study at a distance. Some of the equipment students may need may already be widely available in individual's homes, and it may be reasonable to expect students to own it (eg. radios). Other equipment may not be readily available (eg. personal computers, video-cassette recorders/players, etc.). Sometimes students may own equipment, but it may not be compatible with equipment used by the institution. (This problem arises in the case of, for example, video-cassette recorders, video-disk players, and computers). Institutions may decide to provide equipment on a loan basis to individuals, to provide for access through local centres, or to require students to purchase the equipment themselves.
- 4.9 Account must be taken of the costs of study falling on students, relative to discretionary income, and the implications of the costs for access. (The implications may, of course, be very different, depending on the nature of the target group).
- 4.10 Sometimes the costs of a project will be covered in whole or in part by an international aid agency. Such aid may be in the form of grants, technical assistance, donations of equipment, etc. Not all aid is necessarily helpful. It may, for example, commit an institution to using media which is inappropriate to the target student group; or it may lead the institution to commit itself in ways which it cannot sustain once the aid ceases to be given. For institutions with an on-going commitment to students, this could be serious.

What conclusions can one draw?

- 4.11 Unfortunately, the variables are so great that it is very hard to draw specific conclusions. However:

- the costs of large scale capital costs (buildings, broadcasting facilities, etc.) will generally need to be carried by a government or international aid agency, and treated as a sunk cost (ie. not recoverable)
 - students may reasonably be asked to buy the basic equipment they need to study. If their financial situation is such that this is unreasonable, then:
 - the institution must buy the equipment and provide it to each individual. This can be very costly, and raises problems in respect of warehousing, checking equipment, maintaining it, sending it to students, and (in cases where the equipment is loaned) getting it back from students.
 - the institution must buy equipment and locate it in local centres where students can access it. This is less expensive but raises questions about queuing (demand to use the equipment vs. number of sets provided), ease of access to local centres (location relative to students' homes, opening hours, etc.), maintenance of equipment, and security from theft.
 - the institution can decide not to use the equipment.
 - the extent to which students should pay for all of the costs of (1) tuition and direct other training costs, (2) general student support costs, (3) development and production of course materials, and (4) general institutional overhead costs, is a matter of judgement but in general commercial distance teaching institutions
 - restrict their use of media. The typical correspondence college uses correspondence texts, audio-cassettes and other inexpensive media.
 - only teach in fields where there is known to be an extensive demand for courses (ie. may well ignore areas of great national importance because the costs of writing the material and updating it are too great to warrant investment, given potential student numbers)
 - do not invest in significant levels of student support, thus keeping costs down, but also running the risk of high drop-out rates. Student support is often limited to tuition.
- 4.12 Experience at those institutions which run self-financing continuing education systems indicate the requirement to be self-financing means that one must (1) annualise development and production costs over the life of a course, and on the basis of estimated student numbers, charge students a fee sufficient to recoup those costs, (2) charge direct teaching and general student support costs, (3) make a charge for administrative overheads, and (4) charge a fee which will generate a return on investment and running costs sufficient to generate funds for the development of further courses, including remakes of ageing courses. Not surprisingly, this restricts the area in which courses can be developed to those where sizeable markets can be expected, and places a premium on seeking grants to cover the cost of the initial development and production of course materials.
- 4.12 Institutions operating at an international level will need to take account of varying conditions in host countries and these may affect:
- the absolute capital and recurrent costs of the system which needs to be set up in that country
 - the ability of government to meet the absolute costs of the system, as designed
 - the ability of students to buy equipment and pay for courses, (including fees and

incidental expenses incurred by students in the course of their studies)

- the running costs of the system (eg. effect on costs of customs dues on import of educational materials)

5. SOME UNANSWERED PROBLEMS

5.1 It should by now be clear that

- while generalised lessons can be drawn from the literature regarding the costs of media and the cost-effectiveness of distance education, these lessons can only act as a guide to planners
- there is no absolute consensus on how to cost a project. Even where procedures for specifying costs and outcomes with a view to evaluations projects, are written down (as for example in the International Office Educational Testing Service *Manual for the analysis of costs and outcomes in non-formal education* [1979]), there is a recognition that the most a manual can do is point to a way of proceeding, not provide a recipe to be followed slavishly
- experience shows that the costs of new projects are almost always underestimated
- even when costs have been ascertained satisfactorily, they will only provide one element in an answer to questions such as:
 - Which project should be implemented?
 - Is the project a good investment?
 - Should the project be expanded?
 - Should the project be continued?
 - Should the project be replicated in other areas?
 - Is there a better alternative?

5.2 There is no substitute to costing each system as carefully and as accurately as possible.

6. WHAT NOW? - GUIDELINES FOR THE FUTURE

- 6.1 Section 5 ended by saying that there was no substitute for costing one's own system as carefully and as accurately as possible. Appendix 2 provides a possible framework for costing a project. It should be treated as a guide, not as something to be followed slavishly.
- 6.2 In any intranational or international project, a common framework for costing needs to be adopted if comparisons are to be drawn between the costs of different parts of the project.
- 6.3 Intranational and international projects raise particular problems in costing and the analysis of costs, not least because:
 - organisational structures and work roles may differ, making it difficult to draw precise boundaries in allocating costs to categories of expenditure

- the absolute cost of services may differ markedly for reasons beyond the control of project administrators (eg. radio transmission may be free in one country, expensive in another)
 - in the case of international projects, account has to be taken of exchange rates and differences in inflation
 - If comparisons of cost-effectiveness are to be made, then common measures of desired outcome must be agreed for the whole project
- 6.4 Costing can be done, and judgements made about the relative cost-effectiveness of different systems. Neither costs nor measures of outcome are absolute. Each is capable of interpretation and variation. What is important is that there should be an agreed basis for doing the costing, and for measuring outcomes, so that informed discussion and decisions about the future can then take place.

Economic studies of education costs

1. The majority of cost studies of distance and open education projects have been based on approaches derived from the discipline of economics. Such studies generally
 - identify the *fundamental variables* involved in the institution, project or activity that is the subject of the study. Variables may include
 - student load (based on head counts, full-time student equivalents, or some other appropriate measure of load)
 - either course loads (based on credits, credit hours, or some other measure of load) or materials (number of textbooks, television programmes, etc.)
 - identify the *costs associated with the particular variables* that have been identified, with a view to deriving an average unit cost per variable (eg. unit cost of one FTE student, unit cost of one television programme). Such costs are usually held to be the *direct costs* of that variable. A direct cost is a cost that can be directly attributed to an activity or variable.
 - identify those costs which are unrelated to defined variables. These costs are usually described as *overheads*. Such costs are usually called indirect costs. Indirect costs are costs that cannot be clearly related to an activity.
2. The studies then seek to show how total costs will change given a change in the volume of the fundamental variables within the system. Generally, it is assumed that the overhead costs are 'fixed' although this assumption is usually subject to caveats:
 - in the case of 'young' institutions that are still developing, there is a reasonable expectation that overhead costs will rise. Economic studies of Athabasca University by Snowden and Daniel (1980) and of the Universidad Estatal a Distancia by Rumble (1981) attempted to meet this point by assuming that overhead costs would continue to rise for several years during the initial years of development
 - even for established institutions, overheads are usually held to be 'fixed' within a range of levels of activities, as reflected by the value of the fundamental variables. For example, it may be held that there will be no change in overhead costs while student numbers are in the range 60,000 - 80,000, but that above this level some additional overhead costs may be expected to occur.
3. Typically then, an economic study will derive a series of simple cost functions of the following kind:

$$T = S\pi + C\mu + F$$

where T is the total cost of the project, S and C are variables (for example, students and courses or course materials respectively), π and μ are the average unit costs of S and C respectively, and F is the overhead cost. T, π , μ , and F are expressed in money terms, S and C in volume terms. There may be more than two variables built into cost function. When comparing the costs of two or more projects or of two or more policy options, two measures are generally of importance. The first is the *total cost* (T) of the project or policy. The other measure usually adopted is to derive an *average cost* per student or participant in the educational programme. The *average cost per student* (A) is equal to the total cost (T) divided by the number of students (S)

$$A = T/S$$

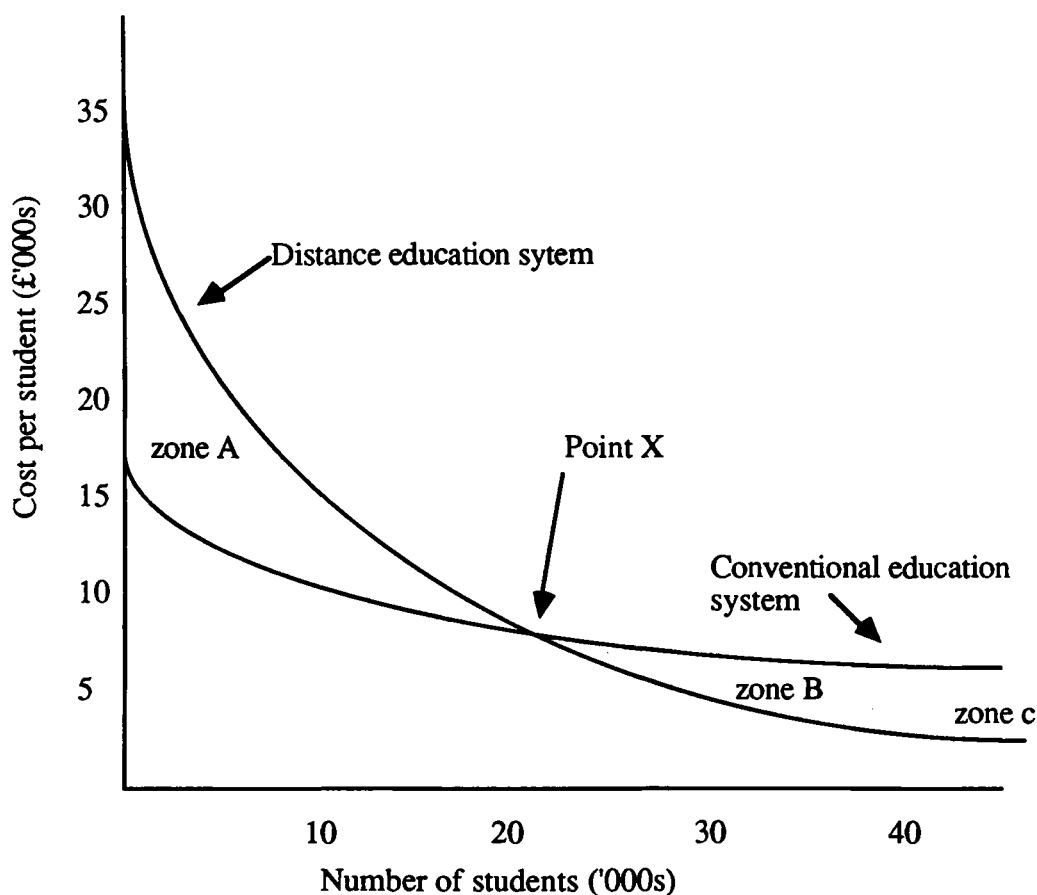
4. It is obvious that as the number of students (S) increases, so the total student-related cost ($S\pi$) will increase. However, a sizeable proportion of the costs of distance education project are unrelated to student number (ie. $C_\mu + F$) so that, while increases in student numbers adds to total expenditure (T), average costs per student (A) fall. 'Economies of scale' are achieved quickly at first, but once high volumes are achieved, further economics of scale are at the margin (see Appendix 1, figure 1).
5. Economic studies have their value in the sense that they
 - identify the fundamental (most important) variables affecting costs in distance and open education
 - demonstrate in simple terms the cost structure of distance and open education
 - assuming that the variables are identified in sufficient detail, enable broad conclusions to be drawn in respect of the cost structure of different media.
 - provide a basis for deriving average costs per student or some equivalent measure (eg. average cost per graduate, average cost per student credit hours, etc.) which can be used to make comparisons between systems, institutions, projects and policy options
 - provide a basis for deriving average costs per one hour's instruction, by media.
6. The virtue of economic studies lies in their simplicity. They can be used for 'propaganda' purposes by the institution to demonstrate:
 - the extent to which a particular distance or open education system is more cost-efficient (ie. has a lower average cost per student or graduate) than another system
 - to show how expansion of student numbers will enable economies of scale to be reaped.
7. On the other hand, economic studies of distance and open education projects generally identify a limited number of variables. The unit costs are average costs, derived by analysing the budget or accounts for a given year, and assigning costs to the variables in the model or to overheads. The total costs assigned to a variable are then divided by the number of units of that variable to give a unit cost per variable. Generally the models
 - do not specify the fundamental variables which affect costs in sufficient detail to be of practical value to the people who are trying to prepare an operating budget for an institution (Rumble, Neil and Tout, 1981:235)
 - depend for their validity on a range of judgements about the allocation of costs to variables (Rumble 1986 b : 4)
 - can seriously obscure the very wide range of costs found in individual programmes (Rumble, 1986 b : 5)
 - while they can demonstrate external cost-efficiency (ie. this system is more cost-efficient than that one), they are useless as a means of demonstrating internal cost-efficiency (ie. this system is as cost-efficient as it can be without impairing its effectiveness).

Appendix 1, Figure 1

Student numbers and unit costs in conventional and distance learning systems

(Note: the figure is illustrative. The values attached to the axes will not necessarily have the values shown.)

- Zone A : Distance system achieves rapid economies of scale but is still more costly per student than conventional system
- Zone B : distance system is cheaper (per student) than conventional system, and economies of scale are still being reaped.
- Zone C : average student cost curve of the distance system flattens out. It is cheaper per student than conventional systems but significant gains in economies of scale are no longer possible, however many students it takes on.
- Point X : the number of students at which the average cost of students in the conventional and distance systems is the same.



Appendix 2

A modified accountancy approach to costing distance and open education programmes

1. The accountancy approach accepts the complexity of educational systems, with their multiple objectives, and sets out through activity costing to relate expenditure to the activities that go on to support these objectives.

Existing budgetary structure

2. Typically, budgeting and accounting systems in educational institutions are based on organisational units with line by line budgets, so that, while it may be easy to tell how much department x spent on academic salaries, it is very difficult to say how much was spent on the development of a particular project or programme (for example, on the Masters of Business Administration programme, a course on Financial Management within the MBA programme, or a television programme supporting the course on Financial Management).

Activity costing

3. Activity costing will identify the activities of the institution and allocate costs to that activity.
4. Two recent studies by Rumble (1986 a, 1986 b) and a study by Orivel (1987) have looked at the problems of costing distance education, and suggested a methodology for doing this. Fielden and Pearson (1978 : 37-62) also outline an accountancy-orientated approach to costing educational practice, while Eicher (1977 : 11-35), Jamison et al (1978: 25-62 and 93-102) and Eicher et al (1982 : 41-64) discuss methods and problems of measuring costs primarily from an economist's point of view.

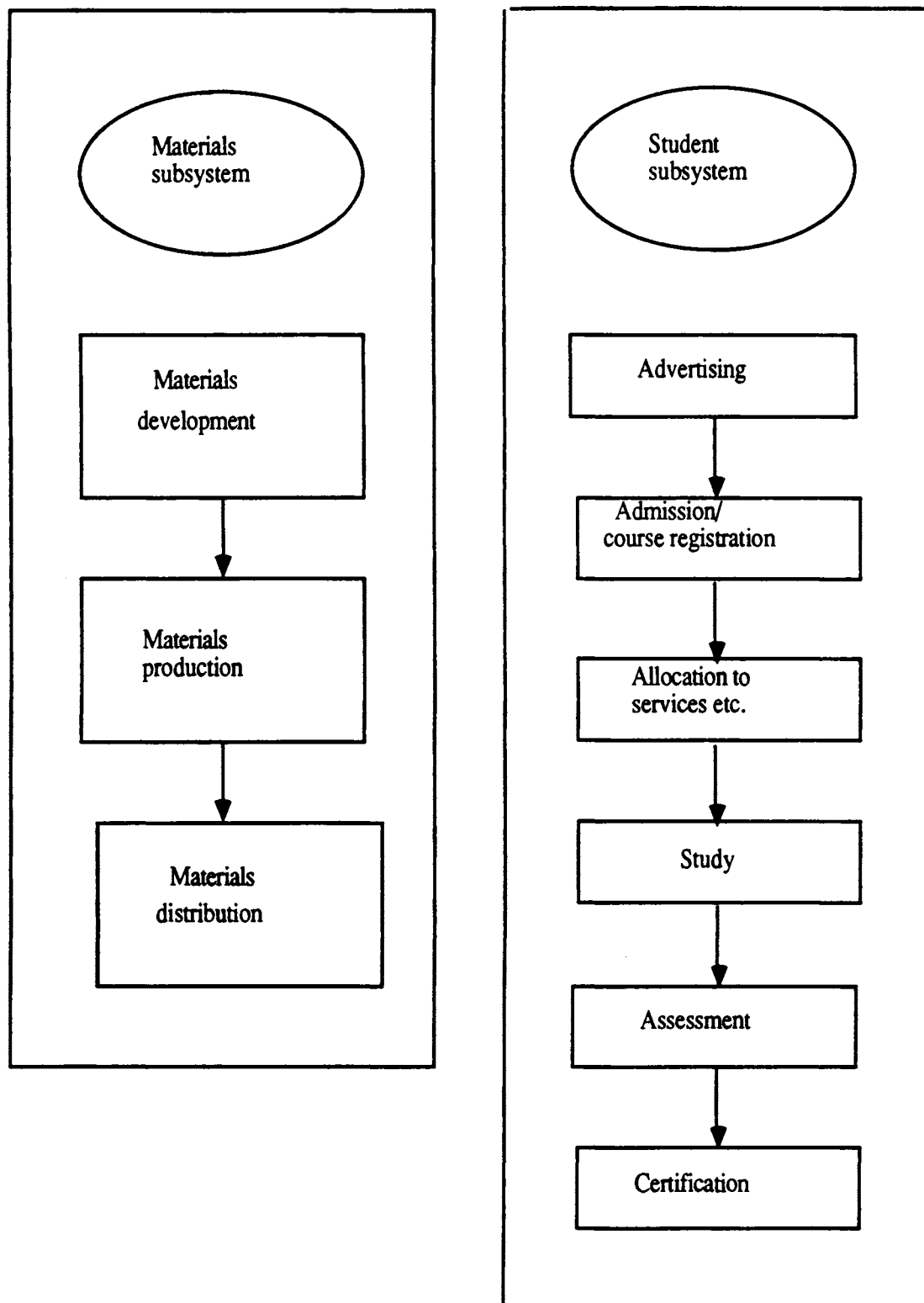
Systems and levels of activity

5. The systems-based approach to the analysis of distance education developed by Kaye and Rumble (1981 : 19-22) provides a basis for cost analysis. Kaye and Rumble identified two major 'operating' subsystems concerned with the import, conversion and export processes that are basic to any distance education system. These are the *materials subsystem* concerned with the development, production and distribution of learning materials: and the *student subsystem* which advises potential applicants, admits and enrolls students, provides them with support services (tutors, local centres, counsellors, etc.), assesses and examines their work, and certificates them at the end of their studies. Each of these are a function, as are the various functions (public relations, personnel, finance, etc.) which go to make up the *management and decision-making subsystem*.
6. The point of contact between the two operating subsystems is the point at which the student receives the materials and begins to study them (Appendix 2 Figure 1). In complex distance education institutions (and most are complex) one can think in terms of a whole series of materials sub-subsystems (one for each medium used - print, radio, tv, audio-cassettes, etc.) and student sub-subsystems (one for each type of student, where a 'type of student' is a student subject to different academic regulations). At this stage it becomes possible to identify the *activities* and *components* involved in each sub-subsystem, where an *activity* is a pursuit in which a person or persons and/or a piece of equipment or pieces thereof is engaged, and where the activity is capable of being described in some way that indicates that it is part of an integrated whole (eg. tutorial, a film show, an examination, the task of editing a manuscript); and where a *component* is a physical entity which is in some sense self-standing (a textbook, a slide, a computer, a piece of computer software, an

examination paper) (Rumble, 1986 b : 13).

Appendix 2 Figure 1

Operating subsystems in a distance education system



7. Activities and components are the lowest level of disaggregation to which it is meaningful for our purposes to attribute costs. It may be easy to determine the costs of a particular activity or component (for example, a residential school or an audio-tape). Equally, it may be rather difficult to do so. In principle, however, it is possible.
8. It is worth saying that what one decides to define as an activity or component depends on the purpose of one's costing. For example, if one is costing a multi-media course, one might well identify the costs of the various activities and component that make up the course:
 - eg. 10 textbooks
 - 4 audio cassettes
 - 3 tutor-marked assignments
 - 1 home experiment kit
 - 1 residential school of one week.

However, if one were trying to cut the costs of one's courses, one might well examine:

- the length of the textbooks, to see if one could not reduce the number of page or the design cost
 - the contents of the home-experiment kit (eg. chemicals, chemical glassware, electronic equipment, etc.)
 - the activities which make up the residential school.
9. Activities and components rarely exist in isolation as an educational experience. Normally, various materials are packaged together in an educational pack (for sale), or materials and activities together constitute a course. A *course* is any collection of activities or components which, taken together, comprise an entity within the institution's teaching programme, and which for purposes of student enrolment is identified as such. Courses may be of various lengths and at various levels. A course might have a code (H121) and a title (*The Causes of the English Revolution 1529-1649*). A *pack* would normally comprise materials but not activities. It too would be identifiable as an integrated whole, and would be available for purchase by the public. There may also be *projects*, which are any collection of activities and components which, taken together, contribute to the achievement of a set of objectives, and which is recognisable as a project. The preparation of this report might be regarded as a project.
 10. Courses and projects can stand alone, but many belong to *programmes*. A programme of courses is any set of courses approved by a competent body as supporting a programme of studies leading (possibly) to some kind of certification (a particular degree or diploma) or which belong to a programme of studies with a common orientation (eg. a series of short courses in the field of health studies, for which no certification is offered, but which taken together have an overall coherence). Projects too may combine in a wider programme (for example, a programme of institutional research into learning at a distance).
 11. Programmes of courses and packs may be regarded as part of an institution's *teaching mission* (a 'mission programme'). There may be other mission programmes - eg. community service mission programme.
 12. Thus activities and components can be grouped at various levels - providing a *hierarchy of levels of activity* - each of which can be costed in the sense that the costs of activities and components (the lowest level of aggregation of cost of

interest to us) can be aggregated at different levels, to show what particular activities cost (be it at the lowest level, or at the level of courses or projects, or programmes, or mission programmes).

13. Before one can cost an institution properly, it is important to define the hierarchy of levels of activity which will interest one.
14. The kind of approach indicated above will provide a framework which will enable one to answer such questions as:
 - (a) how much does a tutor marked assignment cost?
 - (b) how much does the residential school on course H121 cost?
 - (c) how much are we spending on tuition on course H121?
 - (d) what is the total cost of course H121?
 - (e) how much does the History degree programme [leading to the degree of BA(History)] cost?
 - (f) how much are we spending on the undergraduate programme as a whole (ie. the sum of the costs incurred in developing, producing and delivering all the courses offered to undergraduates, and in supporting all undergraduates)?
 - (g) how much are we spending on research?
 - (h) how much are we spending on course production?

Coding budgets and expenditure to systems and levels of activity

15. Providing a framework is, of course, not enough. One needs to assign costs to activities, components, courses, projects, programmes and mission programmes.
16. Typically, an institutional budget will be drawn up on a line-by-line basis by departments (Table 1)
17. There is quite often a legal requirement to prepare a budget and report on expenditure on a line-by-line basis.
18. It is very rare for a department to work on a single programme or mission-programme, let alone on a particular group of courses or project. Educational institutions and departments within such institutions have multiple objectives. The problem is to assign the line-by-line departmental costs to activities. This can be done through a budget coding system which assigns costs to:
 1. Traditional budget categories
 - (a) a department (ie. a managerial unit)
 - (b) a budget line (descriptive of the kind of expenditure)
 2. Subsystem/functional categories
 - (c) a subsystem (materials, student, management and decision-making)
 - (d) a function (ie. a subsystem of one of the operating subsystems or of the institutional managerial and decision-making subsystems)
 3. 'Levels of activities' categories
 - (e) a mission programme (teaching, research, community service)
 - (f) a programme (as defined above)
 - (g) a course, project or pack (as defined above)
 - (h) an activity or component (as defined above)

Levels of activity and the problem of what is or is not a direct cost

19. Note, though, that not all costs can be assigned to the lowest level of activity. For

example, the costs of the personnel office are not directly related to courses or the teaching or research programmes. They are overhead costs which can be assigned to a subsystem (management and decision-making) and to a function (personnel). Whether or not one can assign costs to a particular 'level of activity' category (ie. (e) - (h) in the

Appendix 2, Table 1 : A departmental line-by-line budget

<u>Department of Biology 1988 Budget</u>	
	Price levels: Jan.1988
	£ £
STAFF	
Academic Salaries	
Secretarial salaries	
Technical salaries	
Administrative salaries	_____
<u>Staff : sub total</u>	
NON-STAFF	
Consumables	
Travel	
Reprographics	
Equipment maintenance	
etc. etc.	_____
<u>Non-staff : sub total</u>	_____
	<u>Total</u> _____

list in paragraph 18 above) depends on whether the costs are direct costs of that level. Thus, one can only assign costs to an activity if the costs arise directly as a result of that activity (eg. a residential school). The organisation of residential schools in general will be an overhead cost which can be regarded as a direct cost of the teaching mission programme (one would not have residential schools if one was not teaching). It may, however, be possible to assign these overhead costs to particular courses on an average basis (ie. the average cost of organising a residential school for a course is the total cost of organising them divided by the number of courses with residential schools). Similarly, the cost of organising residential schools for all the courses in a particular programme of courses may be summed and assigned as a direct cost to the programme of courses. (This simple example, incidentally, shows how cost analysis may be done at various levels).

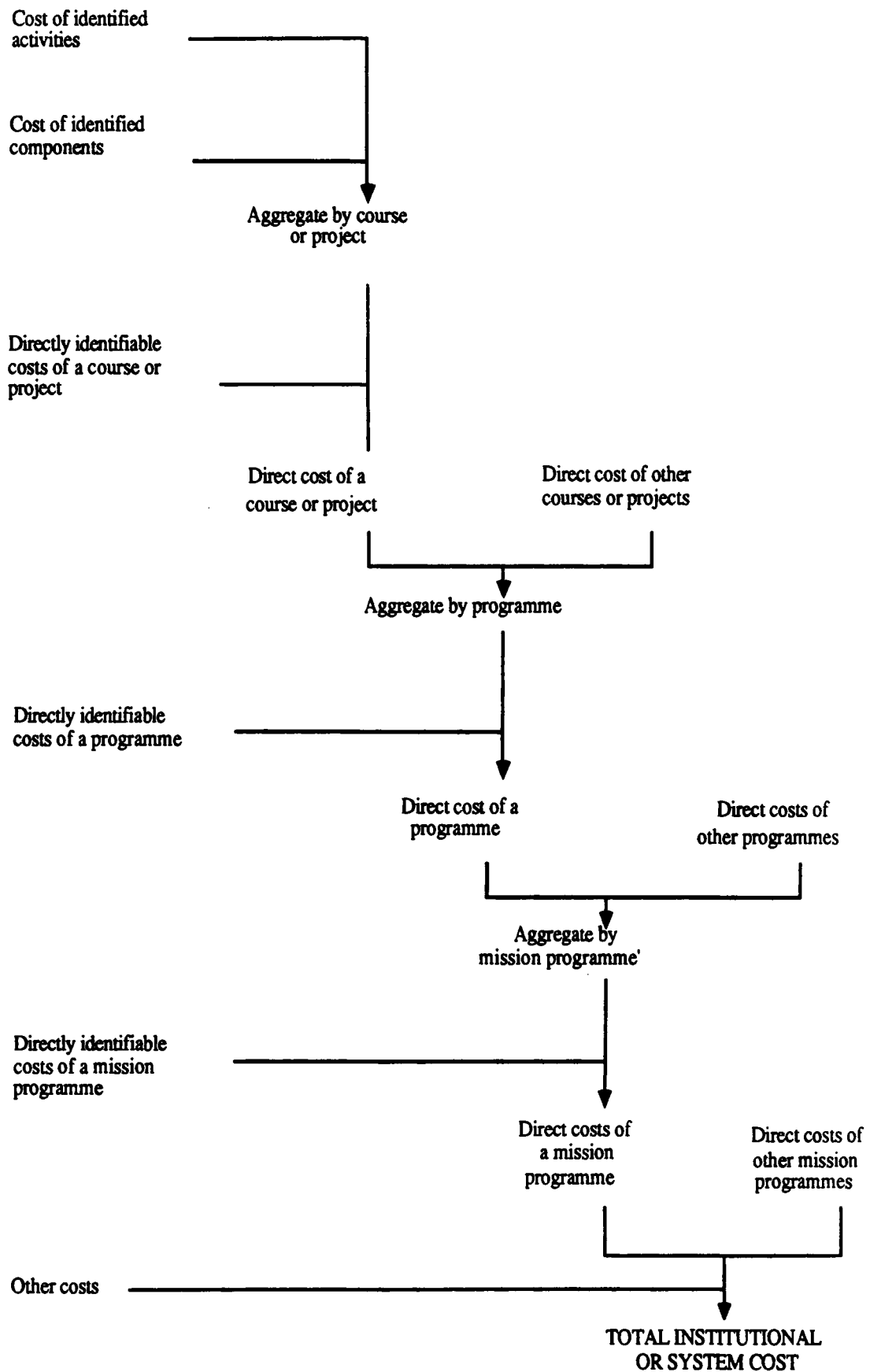
20. Appendix 2, Figure 2 summarises these levels of cost and the way in which they can be aggregated.

Identifying costs

21. How, though, does one identify costs of courses, projects, programmes and mission programmes?
22. At each level, one seeks to identify the direct costs of the activity one is interested in. The direct costs may be staff, non-staff or capital costs, and each of these elements is

Appendix 2 Figure 2

Levels of aggregation of costs



analysed below (the latter in paragraphs 37 et seq).

Staff costs

23. Typically individual members of staff work on a number of projects or courses during any one period of time. An academic, for example, may be working on the development of one course, supporting the presentation of another, working on a research project, and involved in administration. The cost of his time, therefore, needs to be assigned in some way to particular courses and projects, and to 'managerial overheads'. Rumble (1986 b : 17-23) discusses ways in which this might be done. He concludes that:
- the cost of time must be the total cost to the employer of hiring the person, including salary, insurance, employment tax, etc. (ie. gross employer cost)
 - efforts should be made to identify how much time a person has actually spent on a course, project or activity, rather than how much time it is planned to spend on it. This means collecting data after the event.
 - since memories are short, individuals should be asked how much time they spent on an activity at regular intervals, (say every 3 months)
 - since many higher level staff do not have fixed hours of work, since what they are paid is unrelated to how many hours they actually work and since asking them how much time (in hours or days) they spent on an activity might be regarded as threatening, the best approach is to ask what proportion of their time was spent on an activity.
24. Once information has been collected on the proportion of a person's time spent on various activities, it is a relatively easy task to apportion the gross employer cost of the individual between the various activities: eg. Editor Y spent 30% of his working time on course H121, 60% on course H137, and 10% on 'managerial activities' (supervising junior editors). Time spent on holidays or away on sickleave is ignored, and the gross employer cost of Editor Y is apportioned between the various courses and 'overheads' on the basis reported above. 'Overheads' in this case are regarded as being a direct cost of the teaching mission programme, and are therefore coded at that level. As a general rule, any task that takes up less than 5% of a person's time should be ignored, but 100% of each person's time should be assigned to activities.

Non-staff costs

25. Care needs to be taken in identifying the various non-staff costs which make up courses and projects.
26. A major problem is to ensure that course costs are identified on a uniform basis. This problem was recognised by Eicher (1977 : 17-18) who classified 'course' costs according to whether they were *conception*, *production*, *transmission* and *distribution* or *reception* costs. There is some discussion of this proposal by Orivel (1977 : 26-30), leading to the emergence of an approach which 'commands general agreement' and which is based on the analysis of costs in accordance with the following 'technical classification':
- general administration costs
 - production costs
 - transmission (or distribution) costs
 - reception costs

(Eicher et al, 1982 : 51)

27. Rumble (1986 a : 53-7) provides a list of the typical cost elements found in a distance education system. Another list, based on the needs of Deakin University, is provided in Rumble (1986 b : 25). The list below summarises this information.
- (1) Development/re-development costs
Gross employer costs of staff (academic, technical, instructional designer, editor, etc.), Consultants, External editorial and design work, Purchases of materials to help develop the course. Design/development costs incurred in preparation of computer assisted instruction, home experiment kits, ancillary materials, etc., Academic external assessment, Developmental testing, General expenses.
 - (2) Production
Print fixed costs (keyboarding, film assembly, pre-press, machine make ready, cover preparation, etc.), Copyright clearances, TV and video-production, radio and audio -production.
 - (3) Stocking and presentation
Print variable and stocking costs, other material purchase and stocking costs, Storage, Distribution (carriage, mail) and transmission costs, Teaching costs (marking of assignments, face-to-face tuition, residential schools), Examination costs, Tele-tutorials and tele-conferencing, Computer line charges, Local centre costs associated with a particular course, etc.
28. *Development and production costs* are in their nature an investment cost. Stocking costs arise wherever stocks of material are acquired. Some stocks are held for student use in local centres or form a central pool of materials from which items are lent to students during their period of registration on a course. Examples are course books and recommended readings placed in local centres and home experiment kits lent to students. Other stocks are consumed as the material is given to students on a non-returnable basis. *Presentation costs* are incurred annually. Some presentation costs are invariable with student numbers (eg. cost of transmission of broadcasts), some are variable with student numbers (eg. postage where this is to students' homes), and some are indirectly related to student numbers or other factors (eg. carriage of course materials to local centres from which students can collect them).
29. Precisely which costs are incurred and how the costs 'behave' will depend on:
- media choice
 - choices about production and distribution
 - choices about location (local centre vs. home-based systems)
 - choices about provision to students on a permanent or temporary (loan) basis.
30. The purpose of the exercise described above is to ensure that the various cost elements involved across all courses are identified and taken into account in costing individual courses. Not all courses will involve the same costs elements (eg. some courses may use computing, but it is unlikely that all will). The adoption of a standard spread sheet with defined cost categories (but with room for the addition of other costs) will help ensure standardised costing across the institution. Standardised costing also assumes that there are agreed unit costs for standard activities. For example, the costs of marking an essay may be standardised across the institution. On the other hand, the cost of producing a text or television programme may vary depending on length, quality, etc.
31. Course cost spread sheets (Table 2) will need to indicate the costs of a course over time. Generally speaking, costs of development are incurred from one to three years before presentation while costs of production will be incurred up to one year prior to presentation. Presentation costs will be incurred annually over the life of the course. While the course is being presented, some elements may be redesigned, resulting in

further production costs. Production costs may also be incurred when re-stocking is required.

32. Summary spread sheets will show the cost of developing, producing and presenting all courses in any one year (Appendix 2 Table 3).

Appendix 2 Table 2

Course costs : cash flow over the life of the course

	£000s											
year	1	2	3	4	5	6	7	8	9	10	Total	
Development	33	33	34								100	
Production			25	25							50	
Presentation			15	15	15	15	15	15	15	15	120	
Re-development							10				10	
Production*					15		5		10		30	
	33	33	74	40	30	15	30	15	25	15		

* when (1) re-developed materials need to be produced or (2) stocks of existing materials run out.

Appendix 2, Table 3

**Summary of costs of development, production and presentation (DPP)
- all courses, year x**

	H121	H123	H124	H125 ...	Total
Development	x				x
Production		x		x	
Presentation			x	x	x
Total DPP costs	x	x	x	x	x

33. Project costs can be derived in a similar way, although it may be harder to devise a common spreadsheet. However, all projects have (1) initiation and (2) running costs, and costs of projects should be identified with as much care as is taken in the

identification of course costs.

Average costs per student

34. In order to compare the costs of courses, one needs to have some kind of common measure, such as an average cost per student on a course. Courses may, however, be of a different length, while students may have different course loads, so the 'average cost per student head' or 'average cost per student course' can be an unsatisfactory measure for making comparisons. When such difficulties are incurred, a common measure (such as the average cost per FTE student or average cost per student hour) needs to be adopted.

Appendix 2 Table 4

Annualising the cost of development and production

	£000s			
	Presentation years			
	1	2	3	4
Development and production £150.0k				
Annualised cost of development/production	37.5	37.5	37.5	37.5
Presentation	15.0	15.0	15.0	15.0
Total annualised cost	52.5	52.5	52.5	52.5

35. Rumble (1986 a : 27-31; 1986 b : 27-32) discusses ways of doing this. He argues that:

- the first step needs to be to apportion the costs of development and production over the agreed life of the course. e.g. Assume a course costs £150,000 to develop, produce, and provide non-consumable stocks for, and it is intended that this course should be offered over four years. The costs of development and production should be annualised over the four years of presentation. The 'annualised cost of presentation' then becomes the direct cost of presentation plus the annualised cost of development and production (Appendix 2 Table 4).
- if further development work and production of non-consumable stocks occurs, then the cost of such work should be annualised over the remaining life of the course (Appendix 2 Table 5).
- in the event that a course is withdrawn earlier than expected, the annualised development and production cost of the course for its final year(s) is written off
- in the event that a course's life is extended, no attempt is made to revise the period over which development and production costs are annualised. The decision to extend the course's life is taken on the basis of its presentation costs plus the total cost of any further development and production required before its life can be

extended. The costs of the latter would, of course, be annualised over the additional years of life of the course.

- stocks which are consumed by students should be treated as a cost of presentation, and accounted for in the year in which they are used. The value of any unconsumed stocks surviving when the course finishes its life should be written off.
- if comparisons are to be made between years, price levels should be standardised to current year price levels.
- the question of whether or not to discount the 'capital' cost of development and production needs to be addressed. Economists hold that it is not enough to annualise the costs of capital over their life. They hold that one needs to take account of the

Appendix 2 Table 5

Annualising the cost of development and production including redevelopment/further production

£000s				
	Presentation years			
	1	2	3	4
Development and Production £150k			10.0	
Annualised cost-original development/production	37.5	37.5	37.5	37.5
Annualised cost-additional development/production			5.0	5.0
Presentation	15.0	15.0	15.0	15.0
Total annualised cost	52.5	52.5	57.5	57.5

opportunity cost of the capital investment - that is, the income foregone when money is invested in capital goods rather than being put to work to earn interest. Unless this is taken into account, the costs of a project will be seriously underestimated. To take account of opportunity costs of a project and of the cost of depreciation one takes the prevailing interest rate and applies it to the annualised cost using the formula

$$a(r, n) = \frac{r(1+r)^n}{(1+r)^n - 1}$$

when $a(r, n)$ is the annualisation factor, n is the lifetime of the capital in year, and r is the prevailing interest rate.

Perraton (1982 : 59) has observed that 'the argument about discount rates is not

purely academic. If we want to compare types of education that are capital-intensive with those that are labour-intensive, it is important to agree about the proper treatment of capital. The larger the proportion of capital costs in a total budget, the more important is the decision about discount rate adopted'

Discounting does make a difference to the costs of a project. For example, assume the cost of development and production is £152,200 annualised over four years (ie. $n=4$), then the cost per year is £38,050. Discounted over four years where $n=4$ and the annual rate of interest is 11% (ie. $r=0.11$), the cost per year is £49,058.

$$\text{i.e. } £38,050 \{r(1+r)^n / (1+r)^n - 1\} = £49,058$$

From the point of view of institutional management, discounting capital costs is largely irrelevant once the decision to invest in the capital has been taken. It is important at the pre-investment stage, where one is faced by a decision on whether or not to use capital or labour.

36. Once the annualised (and, if necessary, discounted) value of the course materials plus the annual costs of presentation have been determined, it is possible to derive an average cost per student on the course. Appendix 2 Table 6 shows how this might be done.

Appendix 2 Table 6

Cost per student per course

	Year			
	1	2	3	4
• Annualised/discouted cost per course	75000	75000	75000	75000
• Presentation costs :				
(a) Fixed-costs	17000	17000	17000	17000
(b) Variable cost per student : £100	40000	35000	30000	10000
Total	132000	127000	122000	102000
No. of students	400	350	300	100
Average cost per student	£340.00	£362.85	£406.66	£1020.00
Course value : 10 credit-hours				
Average cost per credit-hour	£34 .00	£36.29	£40.67	£102.00

Capital costs

37. In distance education, capital replaces labour offering to educationalists what Wagner (1982 : ix) describes as 'a mass production alternative to the traditional craft

approach'.

38. Capital costs include the costs of buying land, buildings, furniture, equipment, library stock, etc. where the goods or services purchased have a useful lifetime greater than the budgetary period in which the cost is incurred (normally one year) and a cost which is significant. Precisely what constitutes a significant cost is a matter of judgement, but small items of equipment which have a useful life of many years (eg. pencil sharpeners) and a low unit cost are usually treated as consumables.
39. From an institutional management point of view, the cost of capital, once incurred, is a sunk cost. Economists, however, rightly point out that the costs of capital should be taken into account when drawing comparisons between the costs of different institutions, projects or policy options. This is done by annualising the cost over the expected life of the capital, and discounting it using the formula given in paragraph 35 above.
40. How capital is valued depends on attitudes. There are those who believe that it should be valued on the basis of historical cost - generally the cost of purchase. Others believe that the value should be based on net realisable value (ie. the estimated net sale proceeds of the capital). Yet others argue that it is not the historical value nor the sale value that matters, but rather the replacement cost of the capital, and it is this approach which is recommended here. Taking the replacement cost automatically takes account of (1) inflation (2) changes in price level, up or down (particularly important in respect of new technology, where unit costs tend to fall as the technology is absorbed and mass markets are created), and (3) the fact that one tends to replace aging equipment with more modern and 'better' (ie. more technologically advanced) equipment. Land is a special kind of capital good in that, as an asset, it does not (normally) require replacement. The capital cost of land might therefore be ignored, but if it is taken into account, there should be uniform treatment (eg. discounting over an agreed standard period). Buildings are also problematic in that one might decide not to replace an old (historic) building with an exact copy, were it, for example, to burn down. The replacement cost adopted should therefore be based on modern building styles, recognising that for insurance (a recurrent cost) purposes, one might wish to rebuild in an old-fashioned style to harmonise with other old buildings. Thus the suggestion here is that where capital costs are taken into account, the annualised value should be based on:

current replacement cost of capital items

years of life of capital item

41. The annualised value of capital (buildings, equipment, etc.) can then be allocated to projects, courses, programmes and mission programmes on the basis of use. Sometimes this will be clear-cut; at other times, it will not be. In the latter case, proxy measures may be used. For example, the annualised capital cost of a building may be divided between general overheads or mission programme overheads (in respect of open space), or in the case of offices or other work areas, apportioned to courses, projects etc. on the basis of the time which the occupants of the office or work area spend on particular courses, projects, etc. The easiest way of doing this is to add the cost of the space occupied by an employee to the gross employer cost of that employee, and apportion the overall gross employer cost + space cost along the lines mentioned in paragraphs 23-24 above.
42. It has to be said that there is a cost involved in developing and running financial systems capable of analysing costs in this way, and that those undertaking such an analysis need to be sure that they wish to proceed in the way suggested. Obviously, there are other ways of proceeding - from ignoring capital and particularly space costs to treating such costs as a general institutional overhead. In any comparative study,

the important thing is to be consistent across all departments, programmes or institutions.

Running costs of buildings/equipment

43. The running costs of buildings and equipment (eg. utilities such as power, heating, etc. and consumables such as inks) can be identified and may be allocated to courses, projects, programmes, mission programmes or general overheads (see Appendix 2 Figure 1) as appropriate, using proxy measures (such as the use of time of those occupying the building).

Problems of joint supply

44. One of the problems which one faces in allocating course and to a lesser extent project costs to programmes is that a course or project may support more than one programme. For example, service courses (eg. in statistics, computing, etc.) may serve the needs of students on more than one diploma or degree programme.
45. Obviously if one is interested in the costs of particular programmes, one needs to dis-entangle these costs in some way. Rumble (1986 a : 23-7) discusses this problem in relation to mixed-mode institutions (ie. institutions which teach both at a distance and by conventional means) where the costs of developing and producing a course may be set against both the distance teaching programme and the conventional teaching programme. He suggests (1986 a : 25-26) five ways of proceeding:
- (1) Where a course is developed for one programme (Programme A) and later used on another (Programme B), the original development and production costs should be charged to A, and any costs of adaptation charged to B.
 - (2) Where a course is developed for two programmes A and B, the cost should be shared equally between them.
 - (3) Where a course is developed for programmes A and B the common costs should be shared equally between both programmes, but any special costs arising from its use in one or other programme should be charged to that programme.
 - (4) Where a course is developed for programme A but later adapted for programme B, one can estimate what the development *de novo* of a course for programme B would have involved, and charge this to B, with any residual costs (equivalent to the total cost of development less the notional cost of developing a course *de novo* for B) to programme A.
 - (5) Where a course is developed for A and B, one charges the costs to both A and B pro-rata to the number of students on the course enrolled in the A and B programmes.
46. As far as presentation costs are concerned, Rumble (1986 a : 27) suggests two approaches:
- (1) analyse the teaching (presentation) costs appropriate to each programme, and assign them on that basis
 - (2) ignore all differences between the programmes, work out the total presentation cost of the course, and assign the costs to the programmes A and B pro-rata to student numbers enrolled in A and B respectively.
47. Generally it seems right to assign costs that are proper to a particular programme to that programme, while sharing joint costs equitably.

48. Thus, for example, the first and fourth method proposed in paragraph 45 seems to be inequitable (although, of course, the first method may be important when one is considering the cost of a decision to adapt an existing course for use in another programme). Also, if it is a question of choosing between apportionment of costs between one or more programmes on an equal basis (eg. cost attributed to any programme = total joint costs divided by number of programmes) and dividing total costs between programmes pro-rata to student numbers, the method adopted should be the former since the latter

- will be more difficult to do on a routine basis because student numbers fluctuate
- will tend to distort fluctuations in programme costs arising from increases or decreases in student numbers
- makes little sense since one cannot know in advance how many students one is going to have, and as a result could not project the future costs of one's programme.

Help in costing new projects

49. One of the problems faced by those initiating a new distance or open education project is that they frequently have little experience in costing distance education. This is a common problem. Swinerton and Hogan (1981 : 1) point out that non-traditional programmes 'cannot be driven by the same financial flywheels as the more customary academic programs'. Generally 'the budget for a non-traditional degree program is a nightmare for everyone involved'. In those cases where it is funded 'by the same mechanisms as traditional programs, ... there is an inevitable pressure to mold the program itself to fit traditional funding formula'.

50. There is evidence that in a number of projects, including the British Open University during its planning stage (see Perry, 1976 : 20), the financial resources needed to set up and run non-traditional education systems have been seriously underestimated.

51. Rumble, Neil and Tout (1981 : 248-70) developed a series of cost functions which attempt to specify the fundamental variables affecting costs in a distance education programme in sufficient detail to be of practical value to people trying to prepare an operating budget for an institution. While these cost functions have distinct limitations, not least because 'models cannot recreate the complexity of the organisation they seek to reflect' (Rumble, Neil and Tout, 1981 : 236), they form a basis for the development of similar cost functions which can be applied in specific cases. Rumble (1986 : 42-51) provides a further set of cost functions. These cost functions are not meant to be definitive, but can act as a guide to those who are developing their own systems and wish to (1) specify variables affecting costs and (2) having assigned values to the variables, forecast costs with what will hopefully be a greater degree of accuracy than those who do not use a cost function based approach to costing. Formula of this kind can therefore help those about to set up a distance or open education project at least as far as costing main stream activities goes. It is generally much harder to estimate the level of overhead costs which will be incurred by a project.

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PAPER 10

EVALUATION IN DISTANCE LEARNING

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INTRODUCTION

Evaluation in the sense of "the systematic investigation of the worth or merit of some object" has several meanings within education. Its most common purpose is to grade and classify students, to sort out the successes from the failures. However, here we are concerned with "Programme Evaluation", where the focus is on how well a particular educational programme, curriculum or teaching method works, how it might be improved and how it compares with alternatives.

This type of evaluation has and continues to be done by formal agencies, such as the Inspectorate in Britain. However, during the late 1950's and early 1960's the pace of innovation increased with the introduction of new curricula (e.g. "New Maths" and "New Science"), new teaching methods, and new programmes aimed at disadvantaged groups. The cost and scale of these innovations led to a demand for more evaluation and this has produced an increase in professional evaluators. Today educational evaluation is a legitimate field of intellectual endeavour and has its own associations, journals, conferences and theorists.

As in any other field, there are controversies and disputes as to the most appropriate aims, methods, theories, etc. To describe and debate the merits of each of the various paradigms in any detail would require far too much space. Instead we attempt to characterise two very different approaches which, while they are "ideal types", serve to indicate the major divisions within the field.

On the one hand there is the "traditional", "positivist-empiricist" or "agricultural-botany" approach to evaluation. This represents the attempt to apply the rules and procedures of the physical sciences to the evaluation area. Parlett (1970) described how this would work in practice:

"A proper evaluation requires that the experiment or project is structured, from the start, with the design requirements of the evaluator in mind. Only in this way can a thorough-going study be launched. Carefully matched samples must be picked, controls established, and the variables selected for which data will be gathered. The evaluator is likely to require the scheme's organisers to define their objectives, either from scratch or using objectives taken from pre-existing lists like Bloom's.

The next stage is to select or construct appropriate objective tests. Pre-testing, item analysis, checks on reliability, and also, perhaps, the piloting of questionnaires and attitude inventories can then all follow. Next comes the administering of the tests. This completed, the evaluator disappears from the field to analyse his data, only to reappear some months or years later bearing his report."

In its ultimate form:

"large, finely balanced samples are formed into experimental and control groups; they are tested before the pedagogical "treatment" is applied and tested again afterwards; "before and after" and "between samples" comparisons can then be drawn."

This represents the orthodox position in evaluation, the ideal to which most evaluators strive. However, in recent years there has been a counter movement which has challenged this orthodoxy. Collected writings such as "Beyond the numbers game: a reader in educational evaluation" (Hamilton, et al, 1977) "Human inquiry: a sourcebook of new paradigm research" (Reason and Rowan, 1981) and "New directions in educational evaluation" (House, 1986) have documented the weaknesses of the traditional approach and have suggested alternatives.

It is difficult to summarise this new movement because its members are more united by their rejection of the old orthodoxy than by their adherence to a new orthodoxy. Basically the application of physical science methods to complex human phenomena is seen to be invalid, it produces "dead knowledge" which is seldom used and it is immoral in that it frequently involves manipulation of the subjects under study (Reason and Rowan list eighteen objections). The way forward is seen in terms of a more naturalistic methodology and a holistic perspective on human affairs. One has also to acknowledge the complexities of the evaluation process - the fact that there might be several potential audiences with different information needs, the impact of the evaluators own values, the need to adapt one's methodology when, for example, the programme produces unforeseen side-effects.

With the increase in publicly-funded distance education over the last fifteen years, often by the creation of new institutions, has come a corresponding increase in the amount of educational evaluation in this area. As with most innovations, evaluation is required to justify continued funding but also it is necessary because of the invisibility of distance students.

Innovations in distance education frequently involve new teaching methods, new media, new student groups, new curricula and new institutions. In these contexts "evaluation" tends to cover a broad range of activities and employs the full armoury of social science methods of data collection and analysis. Distance education evaluators are aware of the traditional versus new paradigm debate (see Morgan, 1984) and attempts have been made to overcome the problems of conducting essentially qualitative research with distance students. However, distance education evaluation remains eclectic as to its methods and this seems to be inevitable when we consider what such evaluation consists of.

SYSTEM EVALUATION

a) Basic measures of activity

Any system evaluation must begin with certain basic measures. How many courses have been produced? How many students are there? How many applicants had to be turned away? This data is drawn from administrative records and is presented, proudly or otherwise, in annual reports.

b) Measures of efficiency

Allied to measures of activity come those of efficiency. How many students successfully complete the courses? What workload do they attempt? What is the throughput of students? Again this data comes from administrative records (McIntosh, Woodley and Morrison, 1980).

The evaluation can move beyond the descriptive to the examination of patterns and causes. For example, postal surveys can be carried out asking students why they dropped out of courses. However, these tend to produce low response rates and answers of dubious validity. A more systematic approach involves a combination of methods including detailed statistical analysis, an understanding of the subjective process of "dropping-out" and an awareness of the different policy options and their likely impact (Woodley and Parlett, 1983).

Other efficiency measures centre on the question of cost-effectiveness. On the face of it distance education is a cheap teaching method, but just how cheap or whether it is cheap at all is still in dispute (Wagner, 1977 and Mace, 1978). Disagreements among the economists centre upon difficulties in making comparisons with conventional institutions. How does one allow for the fact that distance students remain economically active while studying? Is it important that mature students have less years of economic activity in which to employ their new knowledge?

c) Outcomes

Measures of adequate learning are usually considered to be covered by formal exams and assessment. However, as we note later in this report, there have been some attempts to measure the development of distance students as learners using study inventories and in-depth interviews over a period of several years. In one case Open University economics students were compared with conventional students by administering a standardised test of economic knowledge (Lumsden and Scott, 1980).

On many distance courses there are no formal exams and follow up surveys have to be carried out to see whether there have

been appropriate changes in behaviour or attitudes. Such a study has been undertaken at the Open University to see whether people carried out the energy-saving measures in their home that were specifically recommended. Elsewhere the focus has been on health campaigns (Hall, 1978) and changes in agricultural methods (Coleman and Opuku, 1968).

Mail surveys of Open University graduates have been carried out to measure the personal, occupational and educational outcomes of their studies (Swift, 1982). Such studies allow one to measure the subjective benefits experienced by individuals and the extent to which the qualification is recognised by other educational institutions and professional bodies. Methodological problems include those of tracing graduates after a number of years, finding appropriate comparison groups and determining which changes were a direct result of their studies.

The recognition of the qualification can also be approached from the other direction. A survey of employers was carried out to establish the standing of the Open University degree and the acceptability of its graduates (McIntosh and Rigg, 1979).

Distance teaching can have other outputs besides the more obvious ones. These include the use of teaching materials in other institutions (Moss, 1979) (Glaister and Carr, 1986); the passing on of materials to other learners (Stainton Rogers, 1984); and effects on the educational motivation of the children of distance learners (Fenster, 1982).

d) Programme aims

Some distance teaching programmes specify their basic aims in terms of what and whom they intend to teach. One of the evaluation needs will be to establish the extent to which these aims have been met. The easiest way to measure who the students are is to include detailed questions on the application form and store this data as part of the student record. However, most institutions do not want to make their application forms too daunting or imply that certain information such as ethnic background may influence the chances of gaining a place. It is, therefore, more usual to collect only basic demographic information at this stage and to supplement it by means of special surveys at regular intervals (McIntosh, et al, 1977).

When one of the programme's aims is "open-ness" or an increase in social equity then particular attention must be focussed on formerly disadvantaged groups, be they women, ethnic minorities, working class people or whatever. As well as measuring their representation among the student body and looking at the progress they make on the courses, one can also look at the barriers to greater participation. At the Open

University this has taken the form of carrying out surveys of the general public to determine the levels of awareness and knowledge of the institution (Swift, 1980), surveys of people who sent for details but decide not to apply (Woodley and McIntosh 1977), and surveys of applicants who decline the offer of a place (Woodley, 1983).

e) Policy Evaluation

Formative evaluation in the policy area can take the form of market research. Surveys of prospective students and employers can be carried out to measure the likely demand for possible new courses. Surveys of current students can also be used to sound out opinion on various policy options. A recent study tested the reactions of Open University students to the possibility of reduced tutorial provision on higher level courses (Thorpe, et al, 1986).

Policy Evaluation can take the form of monitoring. The Open University carries out regular surveys to monitor the financial impact of study on its students, thus gauging the effects of fee increases, changes in local authority assistance, the effects of its own financial assistance schemes, etc (Blacklock, 1982). Other survey data on the ownership of televisions, cassette recorders, home computers, etc, can assist course planning (Grundin, 1983).

Research can evaluate the impact of policy changes. A recent study at the Open University showed that the new policy of "deregistering" non-progressing students actually affected a large number of its own graduates (Heron, et al, 1986).

Finally, evaluation studies make take the form of experiments or pilot schemes. A policy option such as the admission of school-leavers to the Open University can be carried out on a trial basis and the outcome evaluated before making a final decision (Woodley and McIntosh, 1980).

f) Organisational evaluation

A distance education programme or institution can be evaluated in terms of its internal organisation and procedures. Just as in any other setting this can involve scrutinising the financial management and general "organisation and methods". More specifically it can involve tasks such as the monitoring of tutors marking patterns and the turn-around time for assignments. Evaluations have also been conducted into the course team approach to distance course writing.

LESSONS FROM SYSTEM EVALUATION IN DISTANCE LEARNING

What sorts of things have been learned from these types of system evaluation? Here are a few examples:

- * There has been a very marked drop in the proportion of teachers on Open University undergraduate courses.
- * Many of those who have heard of the Open University believe incorrectly that qualifications are required for entry.
- * Increased drop-out rates on Open University higher level courses were shown to be due to changes both in the student population and the nature of courses being offered.
- * By 1982 a third of Open University students owned or had access to a microcomputer.

The list of useful, and often surprising, findings could be extended almost indefinitely. However, the findings almost always depend very heavily upon the nature of the system under study and of the society in which it occurs. We are very far indeed from being able to construct "iron laws of distance teaching systems". Take drop-out rates for example. By knowing something about the course characteristics and the student population we can estimate the likely drop-out rate for a new Open University course. However, it would clearly be impossible to use such a predictive model as it stands for, say, a distance learning material pack on vegetable growing in a developing country. Rather than the detailed results of particular evaluations, it is the general approaches and techniques that have been developed that should be of interest to evaluators elsewhere.

Good administrative records are a pre-requisite for much system evaluation. By "good" we mean accurate, comprehensive and accessible to the evaluator. In large scale distance learning projects this generally involves the careful design of self-completion application or registration forms for students, creation of computerised records with each student's demographic characteristics and academic record, and statistical packages to enable the evaluator to manipulate and extract the data in appropriate ways. Special surveys are frequently required to address particular problems. Techniques such as mail surveys, telephone interviews, face-to-face interviews and group discussions have all been used in distance learning systems and each method has its strengths and weaknesses. The choice of method (or methods) will depend upon factors such as environment (e.g. extent of telephone ownership), cost and type of information you are trying to obtain. Mail surveys are commonly used because of the low costs and ease of administration but low response rates often cast doubts on their validity.

The impact of system evaluation on decision making is difficult to measure. Often it is naive to even look for a direct relationship between research recommendations and policy decisions because the research findings are only one input into the decision making process. However, it is certain that an evaluation report will have no impact if it arrives after the decision has been made,

weighs several pounds and addresses the wrong questions. Experience has shown that the best evaluation is done in collaboration with those making the decisions, the form and nature of the evaluation being negotiated with all concerned so that it is appropriate to their needs. (This may involve the evaluator persuading them that they are asking the wrong questions!) Similarly the results need to be disseminated in ways that will produce some impact. This frequently means short summaries of results presented in a straight-forward manner rather than dense articles in learned journals.

The great majority of evaluation in distance learning has been carried out internally by members of the providing institution. This runs counter to the concept of "the neutral judge" but (provided that the staff have the appropriate expertise to carry out the studies) can bring with it the advantages of relevance and timeliness. Above all, a programme of institutional self-evaluation is an indicator of a communal wish for self-improvement. The process of carrying out the evaluation can be as thought-provoking as the results themselves.

COURSE EVALUATION

If a primary aim of evaluating instruction is to improve the quality and effectiveness of the teaching and learning involved, there are a variety of procedures that can be adopted to inform the activities of those involved in providing and supporting instruction. In distance education the separation between teachers and students normally involves instruction or learning experiences being mediated through written or recorded materials. These 'published' materials will normally remain in substantially the same form for several (or many) cohorts of learners, although some modifications and amendments can usually be arranged. In turn, this separation entails the absence of direct verbal and non-verbal feedback from students that is so important in all teaching. The evaluation of any distance education teaching materials or course of instruction (whether or not a formal 'course' with clearly defined expectations of outcomes) may seek to provide information that can be used during the process of developing or preparing materials or learning experiences - *formative* evaluation procedures, or information about how well the 'finished' instruction has worked in normal use - *summative* evaluation procedures (Scriven, 1967). In practice, it is often impossible to draw such a clear distinction, but it does provide a useful way of considering methods of evaluation.

Formative Evaluation

a) Critical Commenting

Whether or not the teaching materials are being prepared by a course team, it should be possible to arrange for peer review

of draft materials. At an informal level this can simply involve one or more colleagues reading, listening to or looking at draft materials and providing comments in terms of the suitability of content (e.g. is it factually correct and supported by examples or evidence, up-to-date, at an appropriate level for the intended students, etc.) and the style of presentation (e.g. does it adopt an engaging style, employ appropriate sequencing and strategies, clearly present information and/or arguments, etc.). The reactions of colleagues can be augmented by adopting the more formal procedure of inviting one or more experts in the field to act as Assessors to comment on the draft materials.

Where arrangements have been made for systematic critical commenting, with teachers or writers reviewing the materials prepared by all the others working on the same course or programme, there is the potential to improve not only individual teaching materials, but also the overall course of instruction. However, it is possible that a 'course team' approach can introduce new problems when writers come to revise their draft materials, as discussed in further detail below.

b) Developmental Testing

As the name implies, Developmental Testing takes place during the preparation phase and involves trying out draft teaching materials with students. The feedback obtained is used to guide and inform writers' revisions to the materials before they are committed to print or tape (Nathenson & Henderson, 1980). Such testing may range from a fairly informal student try-out of a single piece of teaching, to an elaborate procedure for testing draft materials for a whole course of instruction.

Students study the draft materials in the usual manner and may be asked to undertake any other requirements, for example submitting assignments, attending tutorial sessions, etc. and possibly sitting an examination upon completion of the course. Their comments on and reactions to the teaching can be collected by means of questionnaires and/or interviews and observations and are fed into the process of revising the course materials for 'final' presentation.

Experience of developmental testing at the Open University (Henderson, et al, 1983) indicates the strength of the procedure for the revision of materials within the overall structure of the course and that these can be of benefit to both course writers and students. It is, however, not particularly suitable for enabling major structural changes to be made to the course. In an attempt to allow for greater flexibility, a number of other procedures have been tried that are part formative and part summative (Henderson, et al, op.cit.). These involve collecting feedback from students and tutors on a short-term 'published' version of course materials,

to inform revisions to be made for subsequent presentations.

c) Revising Draft Materials in the light of Formative Evaluation

A number of procedures have been discussed for the collection of evaluative comments on the quality and effectiveness of teaching materials during their preparation or development. It should be recognised, however, that evaluation is rarely uncontroversial and that course writers may experience problems when trying to take account of evaluative information and data in the revision of their teaching. For example, it may be difficult to decide which source of information should be given greatest weight (especially if conflicting views have been expressed), comments on later parts of a course or programme may not be as extensive as those on earlier parts, etc. The actual strategies adopted by writers for the revision of draft materials will, in part, be determined by emotional factors, as the process is not simply a technical task (Riley, 1984).

Summative Evaluation

No matter how well distance teaching materials have been prepared, it is not until students study and try to learn from them that it is possible to determine how good an educational experience results. It is all too easy to consider the 'product' of course development in distance education to be the materials that are delivered to students by one means or another, whereas it is really the interaction of learners with those materials and other resources, possibly including tutors and fellow students (Thorpe, 1979). Summative evaluation procedures are intended to provide information about a course or materials in use.

a) Feedback from Tutors

In many situations, those who have been responsible for preparing distance education materials also provide tutorial support to their students. In these circumstances there exists a direct channel for students' reactions and comments to be made known to the course writer(s) and for any problems with the instructional arrangements to be discovered. However, many distance education tutors may not have been directly involved in the development of teaching materials for the course(s) they tutor. Where such tutors support a course by marking assignments, running tutorial sessions (face-to-face or by means of telecommunications), etc. mechanisms can be implemented to collect, on a systematic basis, evaluative comments from them on a range of issues, e.g. their reactions to the teaching materials, accounts of problems their students have encountered in their studies and assignments, etc. (Ryan, 1982). The experience of tutors in making the course work can provide particularly useful information for subsequent modifications to or adaptations of the teaching materials and instructional arrangements.

b) Feedback from Students

The collection of feedback from students undertaking a course can provide information that may be of value to (i) students of the course in that or subsequent presentations, (ii) students of a replacement course and (iii) students taking other courses prepared by the same writer(s). It may be possible to implement some revisions during the presentation of a course as a result of students' comments, for example by providing a supplement to update information or to clarify a problem area. More frequently, the student feedback from one presentation of a course helps to determine revisions for subsequent presentations. After a course or programme of instruction has been presented in substantially the same form to many cohorts of students, feedback may be collected to inform decisions about remaking or replacing the course. Information gained by course writers about the success (or otherwise) of approaches and strategies employed in their distance teaching may prove to be of great value when they prepare further courses.

Students may be invited to comment on their experiences of studying a particular course by means of questionnaires and/or interviews. Feedback may be sought on each unit of instruction or part of a course. Questionnaires are probably most widely used for collecting feedback from students and can include several different types of question. At the simplest level a questionnaire may just ask students to indicate what they thought were the 'worst' and the 'best' aspects of the teaching and to specify any particular problems they encountered. At the other end of the scale, questions may be posed on all aspects of the course, possibly using multiple-choice response categories that can be coded for computer analysis. Questions may seek to obtain information about the following main areas of interest:

* Extent of Utilisation. In distance education it is important to know exactly what is being studied and what use is being made of the teaching materials and other resources. Students may be asked to indicate which parts of the course or programme they have studied, which components they have used, how much time they have spent on their studies, etc. They may also be asked to report on any problems they have encountered in obtaining the course materials or in gaining access to resources.

When interpreting the responses to these questions, it must be remembered that students' answers are subjective due to their individual 'orientation' to their studies (Taylor, et al, 1981a). They may all have different reasons for studying a particular course or set of materials, have varying amounts of relevant prior knowledge and experience in the area of study and be undertaking their studies in a variety of financial, geographical, domestic and, possibly, occupational circumstances. Questionnaire responses should not be

considered without reference to possible differences in such student characteristics. For example, a student may report having spent considerably less than the notional amount of study time on a particular unit of instruction, due to a high level of existing knowledge about that aspect of the course. Another student of the same unit may report having spent considerably longer than the notional study time, because of great personal interest in the topics and a willingness to explore them at great length.

* Overall View of the Teaching. Students may be asked to rate the teaching of a particular unit of instruction in terms of its interest, perceived relevance or usefulness, level of difficulty, etc. They may also be asked to rate individual components of a course (e.g. teaching text, audio-tape, etc) in terms of their relative usefulness.

Again, when it comes to interpreting the responses, account must be taken of the subjective nature of students' answers. The 'relevance', 'interest', 'difficulty', etc. of any unit of instruction will mean something different to each person studying it and an individual student's rating will largely be determined by his or her orientation. For example, a topic that is considered by one student to be highly relevant (perhaps for vocational reasons), may be rated at the opposite extreme by another student with different orientation.

The analysis of responses on rating scales requires some caution. Very often 4-, 5- or 6-point rating scales are used (e.g. 1 = Very Interesting, 2 = Fairly Interesting, 3 = Of Little Interest, 4 = Of No Interest). It is not valid to average the responses from a group of students to the same question (i.e. reporting an 'average rating' of 2.1 for a particular unit of instruction), because the difference between points 1 and 2 on the scale is not the same as that between points 2 and 3, etc. (They are usually 'Ordinal Scales'). Responses should be reported in a form such as "x% of students found the unit 'Very Interesting' or 'Interesting'".

* General Style of Presentation. Course writers may be keen to receive students' comments on the style of presentation, both in terms of layout, design, etc. and the coherence and clarity of the teaching. Perhaps more importantly, students could be asked to comment on the extent to which the teaching style or strategy had enabled them to become actively engaged in learning from the materials.

Here again, it is important to take account of students' orientations to their studies when interpreting responses. For example, students with an 'instrumental' or 'extrinsic' orientation may prefer a didactic style of presentation, while other students may not.

* Specific Content Issues. It is important to know how well the teaching has achieved its aims and objectives. To this end, information about students' problems with key concepts, ideas and relationships, etc. can be of great value to course writers when it is time for revisions to be made.

Students may be asked to indicate on a multiple-point scale how well they felt particular key points had been taught, or may simply be asked to report any specific problems they had encountered. Simply to know that difficulties exist may not be enough. It may be possible for students to suggest whether problems arise from the inherent difficulty of certain ideas, etc., or from the course writer(s) explication in the learning materials. Any indication of the nature of specific difficulties can be of great value when revisions are made to the teaching.

At the Open University extensive use has been made of questionnaires for the collection of feedback from students during course presentation (Lockwood, 1983; Ballard, 1983). The questionnaires used for courses in their initial presentation contain some items that are course specific and others that allow comparisons to be made between courses for certain aspects of the information, e.g. workload, use made of course components, etc. Depending upon the number of students taking a particular course, questionnaires may be sent to all or to just a sample of students. If a series of questionnaires is to be used for a course or programme of study (for example, one questionnaire for each part of a course), problems of diminishing response rates may be encountered, with fewer students providing feedback on later parts of the course. In such circumstances, it has been found that the decline in responses can be reduced by using 'panels' of respondents, i.e. sending the questionnaires for each part of the course to a different sub-set of students, so that each individual receives only one form to be completed. An increase in responses to the questionnaires on later parts of the course will normally compensate for any reduction in the total number of respondents for each part.

Student Interviews. Questionnaires can be criticised as a method for collecting student feedback on the grounds that they elicit responses to questions that are of interest to the course writer(s) or evaluator(s) and not necessarily on issues that are considered important by students. The constraints of questionnaire design can in part be overcome by including space for students to comment in an open-ended way about their reactions to and experience of studying a course. Interviews with students, conducted either face-to-face or by telephone, can provide a richness of response difficult to achieve by use of questionnaires alone. Depending on the type of information sought, a highly structured interview schedule may be utilised or just a short list of key areas to be covered in a relatively free-flowing discussion.

Although interviews may be more time-consuming to conduct and analyse than questionnaires and may elicit responses from a smaller number of students, in-depth interviews are particularly useful for gaining a view of courses from the students' perspective (Taylor, et al , 1983).

c) Revising Courses in the light of Summative Evaluation

By a variety of means, a wide range of evaluative comments and information can be collected from students, tutors and, possibly, other interested parties. Each of the various methods described above has its strengths and weaknesses and for any particular course one or more of the procedures may be considered to be most appropriate. For example, a questionnaire survey of students may provide an indication of significant problem areas and lead to some follow-up interviews being undertaken with tutors and students in order to determine the nature of the problems and to elicit suggestions about how they can be overcome. However, before any procedures are initiated, it is important to establish the extent to which it is possible to make changes to the teaching in the light of any evaluation. To a large extent, this means considering what information can be acted upon (and is therefore worth collecting), and when it should be collected.

It may be very difficult to amend teaching materials in their 'published' form due to the physical format (e.g. as printed booklets, audio- or video-tape, etc.) or a lack of resources (human or otherwise) to implement changes. Even if evaluation indicated a major problem with the teaching materials, it would be difficult to do more than change the sequence of presentation, omit a part or make it optional, provide additional study guidance, etc. However, in such cases there is little point in conducting a thorough evaluation of all aspects of the course or programme of study - it would be better to concentrate on aspects that can be acted upon for future presentations, for example tutorial and assessment arrangements.

Timing the collection of evaluative information is similarly important. It is important to collect information and data at a time when it can be of most use. Very often, evaluation studies are undertaken during the initial presentation of a course in order to inform changes for future presentations. However, there may be reasons to believe that the first cohort of students is not typical of the students who are likely to study the course, for example they may be more highly motivated to take that particular course. In those circumstances, a second or subsequent cohort may be considered more appropriate. If changes are to be implemented during the current or in a subsequent presentation of a course, the evaluative information must be available in time to be acted upon. If amendments are to be made to printed or recorded materials, production time is necessary - if tutorial or assessment arrangements are to be

revised, adequate notice is required. When deciding how and when to evaluate distance education courses, it is necessary to consider what changes are possible given the time and resources available.

CROSS-SECTIONAL STUDIES

Within an overall programme of distance education it may be considered desirable to undertake an evaluation study of a particular innovation or component used in a number of courses. Such studies are likely to be concerned with drawing out generalisations from the use of a particular aspect of the teaching, or with establishing the effectiveness of a particular strategy or teaching medium. The research may be used in the formulation or revision of policies for the institution and, as such, could contribute even more to the development of future courses than to those evaluated in the study. Any such study may utilise one or more of the methods already described for the collection of information, i.e. questionnaires and interviews. Studies of how students use certain resources may also involve direct observation of individuals or groups in the process of studying (at residential schools, tutorial sessions or in their own homes), or shortly afterwards by means of stimulated recall (McConnell, 1985).

The role of particular course components has been of concern to the Open University and other institutions using a multi-media approach to distance education. Research into the use of audio-visual media (Grundin, 1985), tutorials (Kelly, 1981; Kelly & Swift, 1983), and computer assisted learning (Scanlon, et al, 1982) has involved collecting information from students on their access to and use of particular components and resources, as well as eliciting their views on the contribution made to the teaching and the overall effectiveness of courses.

The responses given by students to questions about access to resources or facilities for their studies can be highly subjective. For example, a student living in an urban area may consider that the journey across the city to a study centre makes access 'poor', while a rural student may regard access as 'good', even though a much longer journey is necessary (Evans, 1986). In cross-sectional studies, however, it is often important to consider situations from the students' perspective.

The introduction of an innovatory teaching strategy may also give rise to evaluative research across a range of courses, for example the use of project work to encourage greater independence in distance education (Henry, 1979).

DEVELOPMENTAL STUDIES

Evaluating the effectiveness of teaching and learning within a

distance education programme or institution may also involve undertaking research into the understandings developed by students as a result of their studies. Qualitative changes in the understanding of key concepts and relationships formed the focus of a study of Open University social science students (Taylor, et al, 1981b & 1981c), based upon a method for evaluating the content of students' learning developed in Sweden by Dahlgren (1978).

The study was concerned with finding out not *how much* students know, but *what* they understand about particular concepts and principles. A group of university students taking an introductory social science course were individually asked a set of questions about key concepts and principles taught in the course. They were interviewed before commencing their studies and again after completion of the course. The questions were asked in everyday language, in order to establish what the students understood of these ideas, in their own terms. Analysis of their answers revealed that for each of the key ideas a number of qualitatively different conceptions existed and that it was possible to categorise them. Students would be expected to hold conceptions that were qualitatively more sophisticated after completing the course.

In the course assessment, all the students interviewed both before and after taking the course gained enough marks to pass. However, the conceptions held by students (as revealed in the interviews) show a different picture. For each individual concept or principle, some students demonstrated an improvement in the sophistication of their conception after taking the course, some showed no marked difference and a few held less sophisticated conceptions at the end! Hardly very encouraging outcomes. The findings of this study informed the writers of the replacement course, not only by identifying problem areas in the teaching, but also by illustrating the different levels of pre-course understandings that students were likely to have.

This approach to establishing the success (or failure) of individual teaching units in enabling students to develop more sophisticated understandings can provide evaluative information that is of great value when revising or replacing teaching materials. However, such an approach can only succeed with collaboration and co-operation between course writers and evaluators in determining the key ideas that form the focus of the study, in agreeing the categorisation of conceptions and in acting upon the evaluative information that is available.

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PAPER 11

INFORMATION AND DOCUMENTATION RESOURCES

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1. Introduction

Information and documentation are frequently talked of in optimistic terms when new international organisations are established and when cooperation between institutions is discussed. National and international organisations of distance teaching institutions invariably include a reference to information exchange in their list of objectives. In practice, the work which has been done often does not match the good intentions which have been expressed. Some initiatives have achieved tangible outcomes in the form of a documentation centre, a database, a directory, or a journal, but the development of information and documentation services in many parts of the world has been hampered by several crucial factors, including lack of adequate, permanent funding, lack of appropriately trained, experienced staff, and absence of a clear conception of where work should actually begin and what its objective should be.

This report sets out to identify the forms in which distance education documentation and information appears; the use which is made of it and by whom; resources which exist throughout the world and, more specifically, in countries of the Commonwealth; and the problems faced by documentalists working in the field both on their own and in attempting to collaborate with colleagues in other institutions and other countries. References will be made throughout to the experience of the International Centre for Distance Learning (ICDL), which is based on the campus of the Open University.

1.1. The published, semi-published and unpublished forms of the literature of distance education

The principal difference between the literature of distance education and the literature of education generally is that a large proportion of the documents relating to distance education are unpublished or semi-published. This 'grey' literature emanates primarily from international agencies, national government departments, individual university and college departments, and other distance teaching institutions and projects. It includes position papers, research reports and surveys. Many documents are produced for internal institutional use, but frequently their status is not confidential; they are available for public distribution or sale. The 'grey' literature creates a major problem for anyone attempting to identify, collect and record documents relating to distance education since it is rarely included in the existing bibliographical services and is therefore very difficult to trace. Yet it frequently provides invaluable data which has not been specially prepared for external publication and may present a truer picture of the workings of the institution than an 'official' publication in addition to setting out more detailed information than is available elsewhere. A

paper prepared for planning purposes may be unavailable outside the producing institution, but the status of research reports is often such that they are freely available for distribution.

The small proportion of distance education literature which appears in the form of commercially published books is dominated by UK publishers, in particular Croom Helm and Kogan Page, who have identified a market and cater extensively for it. Several series of publications are produced by distance teaching institutions, notably the International Extension College's Broadsheets on Distance Learning, the Open University Distance Education Research Group's DERG Papers and the Fernuniversität Zentrales Institut für Fernstudienforschung's ZIFF Papieren. Deakin University, Australia, and the Open Universiteit, Netherlands, have recently launched occasional papers series. Publications in each of the series mentioned above are sold, with the exception of ZIFF Papieren, which are available without charge.

The number of journals devoted specifically to distance education, excluding house journals, is relatively small despite the recent extensive growth of this type of education. Most of these journals are published by regional organisations of distance teaching institutions; details appear in section 2 of this report. But although the number of distance education journals is small, more and more articles relating to distance education are appearing either in journals with a more general focus on education, or with the teaching of particular subjects, or with the use of media. Examples include Higher education and the British journal of educational technology; the Journal of biological education and the International journal of mathematical education in science and technology; and Media in education and development and the Journal of educational television. Another increasingly common trend is the publication of special distance education issues of journals. Recent examples include Programmed learning and educational technology (vol.23, no.1, February 1986, 'Helping adults learn at a distance'), Vocational training (no.15, September 1984/II, 'Distance learning') published by CEDEFOP, the European Centre for the Development of Vocational Training, and a forthcoming issue of the Unesco journal Prospects. The proliferation of open and distance learning is being paralleled by an expansion in the quantity of literature being produced; the very nature of distance education, and in particular its wide applicability, ensure that this will become progressively more scattered and more difficult to trace.

The general expansion of distance education is also reflected in the increasingly large number of conferences, seminars and workshops which are being arranged, concerned with distance education in general, with specific aspects of distance education, or with provision general or specific in particular regions or countries of the world. The largest of the conferences, the World Conference of the International Council for Distance Education, attracts hundreds of participants and hundreds of papers from all over the world. Many much smaller events are held which aim to

address particular local problems. Whatever the focus, function or size of the gathering, it is almost certain to stimulate the production of papers and perhaps of a collected volume of some kind. This type of literature is particularly important since conference papers frequently provide both information and perspectives which are not readily obtainable elsewhere. This is especially true of institutions which teach in languages which are only used in the countries in which they operate. Conference, seminar and workshop papers, which must usually be produced in English or in another widely known language, can be invaluable sources of otherwise scarce data.

Two additional categories of documentation are also likely to be represented to a greater or lesser degree in a collection specialising in distance education. These are official publications such as prospectuses, courses handbooks, annual reports, and samples of course materials. The collection of course materials on a large scale presents a series of problems, the most obvious of which is that of providing adequate storage space, quite beyond the resources of any existing documentation centre or library in a distance teaching institution. Similarly, a comprehensive, regularly updated collection of prospectuses is very difficult to maintain. Not many distance teaching institutions and projects have mailing lists; effective updating is a yearlong process.

Databases and directories which do not relate to the literature tend to focus on general information about distance teaching institutions in particular countries or regions and, increasingly, on courses which they offer. Descriptive information is of use both to students and potential students seeking courses of study and to staff concerned with expanding their own institutions' offerings. Since institutions are required to match their programmes to students' needs, and since economic constraints are universal, interest in other institutions' course provision is on the increase. The intention may be to purchase, to adapt, to seek to collaborate, or perhaps simply to provide a catalyst to course writers.

1.2. The status of information and documentation work

Recent years have seen tangible evidence of the increasing recognition of the importance of information and documentation work in distance education. Several international organisations have provided significant financial support, and others have expressed their interest in terms of constitutional resolutions. ICDL was set up in 1983 through funding from the United Nations University and with the cooperation of the Open University and of the International Council for Distance Education (ICDE), which has also contributed financially to ICDL in 1986. Following a resolution passed at its 1985 Thirteenth World Conference, the Council has granted ICDL the sum of C\$3,000 for the period 1986-1988. The resolution reads: "That the Executive Committee promote the continued development of the International Centre for Distance Learning so as to make institutional/bibliographical data readily available throughout the world (as hard copy or in disk form) and support the Centre so as to ensure its continuing sponsorship by

the United Nations University." The sum is small, but its significance is considerable since it represents a commitment to the Centre of a substantial proportion of the Council's total funds, and is the first and only financial contribution made by the Council towards the continuance of any organisation. During 1986, the President of the Council has proposed that, in the event of the Centre's external funding coming to an end, the Council should seek to continue its functions through the medium of a permanent Council secretariat. ICDE is one of several international organisations of distance teaching institutions which have incorporated into their constitutions resolutions relating to information and documentation; other examples are included in section 2. ICDE's constitution includes one objective which specifically refers to information, "(d) to exchange publications, lesson material and other information respecting the growth and organisation of distance education." Two others can only be achieved where an information and documentation base exists. These are "(a) to promote knowledge and improvement of distance education throughout the world" and "(b) to conduct and promote research and scholarship on distance education."

In addition to its funding of ICDL, The United Nations University has expressed an interest in the concept of regional resource centres. Lord Perry has undertaken some preliminary investigations on the University's behalf in India, South America and South East Asia and has elicited several favourable responses. The role of the regional resource centre would be to collect sets of course materials produced in the region and make them available to visitors from new institutions and from institutions proposing to extend their course programmes.

The second notable development is the creation of new documentation centres and documentation collections by a number of distance teaching institutions in different parts of the world; details are included in section 2.

1.3. Bibliographical coverage of distance education

Many countries of the world operate national bibliographical services, which regularly publish references to documents published within their own country. All are produced in printed form, and some are also computerised and accessible on-line. Some include specialised databases on education; examples are the British Education Index and the Australian Education Index. The national services are useful sources for references to commercially published documents, and the specialised databases contain many references to journal literature. But distance education literature by its nature does not lend itself to good coverage through this type of service. The 'grey' literature which predominates is not usually included in national bibliographical services. In the UK, the British Library is attempting to fill this gap through its SIGLE file, a European 'grey' literature file available, like the British Education Index, through the BLAISE system. But to date, SIGLE contains a mere handful of references to documents relating to distance education. 'Grey' literature is by its nature elusive, and no database can include references to documents of whose existence it

is unaware. This is one of the problems facing the American-based ERIC (Educational Resources Information Center) database, which is the world's major educational bibliographical service, specialising in 'grey' literature, particularly research reports, and journal literature. Only a small proportion of the 'grey' literature of distance education is covered in ERIC. There are two principal reasons for this partial coverage. The first is that unless documents are sent direct to ERIC clearinghouses, it is very difficult for ERIC staff to discover what is being produced. ICDEL assists the discovery process by regularly sending its New accessions list, which contains details of new documents received and how to obtain them, to clearinghouses, each one of which is based in an American college or university and has the responsibility for collecting documents relating to a particular type or level of education. There is evidence to show that at least one clearinghouse follows up references in the lists.

But not every institution is prepared to supply its publications to ERIC, since an institution's own sales may be adversely affected through the functioning of the ERIC Document Reproduction Service. ERIC not only collects documents, it makes available report literature in hard copy and/or on microfiche on request. For each document included in the database, a permission release must be completed by the copyright holder, specifying the level of release, i.e., whether it may be reproduced in hard copy and on microfiche, whether reproduction is to be limited to microfiche, or whether no form of reproduction is to be permitted. It is ERIC policy to be highly selective in the cases of documents which it is not able to reproduce, so that a record of such a document may never be included in the database. ERIC states that the inclusion of a document record in its database will stimulate institutional sales, but in practice this does not appear to be the case, and ERIC's conditions for accepting a document in some instances discourages institutions from submitting their publications.

Personal communication with the director of one of the clearinghouses has revealed the second reason for ERIC's partial coverage of distance education, which is quite simply that some clearinghouse directors are interested in distance education and others are not. The degree of interest is related to the individual's perception of distance education. A different interpretation of the term tends to be current in the United States from that which is familiar in almost every other country; that which is regarded as 'distance education' in the United States is not necessarily seen as such in other countries, and vice versa. A closely related factor is the relatively low esteem in which distance education is perceived in the United States is held in that country. It seems most unlikely that ERIC's coverage of distance education will ever reach a satisfactory level in terms of the proportion of the literature which is included.

Criticism can justly be levelled at the treatment of the distance education literature which does find its way into the ERIC database. The ERIC thesaurus includes almost no distance education-specific descriptors, and those which are available are applied indiscriminately. Examples exist of UK Open University research publications which are indexed under the descriptor

'distance education' but not under 'open universities', and of others which are indexed under 'open universities' but not under 'distance education'. In themselves these are relatively trivial instances of inconsistency, but they are symptomatic of a much wider lack of standardisation which induces lack of confidence in the system as a whole. The experienced user feels it necessary to search under every possible related descriptor to try to ensure that the database has been properly searched.

Searches of several international databases were undertaken in early January 1987. The ERIC database, which includes the Current index to journals in education in addition to report literature, has 570 entries under the descriptor 'Distance education' and 394 under 'Open universities'. These represent a total of 868 documents and articles. 104 reports and 49 articles were added to the database during 1986. The French-based Questel Francis-S database contained 159 entries under the term 'Enseignement à distance', many of which date from the early 1980s. The BLAISE SIGLE file mentioned above contained only 14 entries under 'Distance education', nine of which were for documents sent to SIGLE by ICDL. Finally, the European Space Agency EUDISED database of European-based research projects contained 77 entries under 'Distance study' and 42 under 'Correspondence education'.

1.4. Progress towards a bibliographical service for distance education

The inadequacies of ERIC and the absence of any other international database in the area of distance education are universal causes of concern amongst librarians and documentation specialists responsible for building collections of distance education literature. This concern was clearly expressed at a meeting convened by Angela Castro of Deakin University Distance Education Unit, Australia, and Keith Harry of ICDL during the Thirteenth World Conference of the International Council for Distance Education at Melbourne in August 1985.

There was general agreement concerning the need for an international database on distance education literature and that means for creating it should be investigated. An informal working group was formed, comprising representatives of Deakin University, ICDL, Athabasca University, Canada, the Open Learning Institute, Canada, the National Extension College, UK, Armidale College of Advanced Education, Australia, the Deutsches Institut für Fernstudien an der Universität Tübingen, West Germany, the Universidad Nacional Abierta, Venezuela, and the Universidad Nacional de Educación a Distancia, Spain. Keith Harry was given the responsibility of circulating information to group members on two specific issues, the identification of a common format for the cataloguing of distance education documentation, and the identification of a thesaurus suitable for use in subject indexing. The format specification was also discussed at a subsequent meeting held at the Open Learning Institute, Vancouver, Canada, in May 1986, attended by Keith Harry and the Librarians of Athabasca University and the Open Learning Institute, and a generally acceptable format has been adopted. It was generally agreed that the thesaurus compiled from the ERIC Thesaurus for the

use of indexers working on the Australian Education Index was acceptable as a general framework into which distance education-specific descriptors might be introduced. The Librarian of the Open Learning Institute agreed to attempt to compile a list of distance education descriptors, but this task has proved more difficult than was originally envisaged. A solution to this problem will be evolved in 1987. During the latter half of 1986, the Open University Academic Computing Service has designed and developed a system for the computerisation of the catalogue of ICDL. In January 1987, the system will be available for piloting. It is an extremely sophisticated, powerful and flexible system which will not only cope with all the requirements of the Centre but will also permit the introduction of entries from other databases.

1.5. Who are the information users, what are their needs, and how are they met?

No mention has been made so far in the report of the users of distance education literature and their needs except in the broadest terms. Every collection has its own particular functions within the institution which it serves, but ICDL is in the unusual position of being totally externally funded, so that it has an extensive external clientele in addition to users from the home institution, the Open University. The following paragraphs categorise the Centre's users, describe their demands, and indicate those areas where resources require strengthening.

The Centre is located on the campus of the Open University although it has been funded by the United Nations University since 1983. Many of the visitors to the Centre are University staff. Their information needs are many and varied, including:

- seeking information on institutions and countries to which visits are planned;
- requiring briefing on institutions and countries from which visitors are expected;
- seeking information to assist in writing Open University course materials, reports, books, papers and theses;
- seeking information for University committees;
- requiring updating on developments overseas in particular aspects of distance education or in the use of particular technologies;
- requiring updating on the progress of distance education in particular regions, countries or institutions.

Many University staff also contact the Centre by telephone, via the internal mail, or through the University's electronic mail system. Their enquiries may fall into any of the categories enumerated above, or may consist simply of requests for names of possible contacts in other institutions or for addresses. The

Centre also fulfils the function of a reference library on education overseas for the University generally since it has a stronger overseas education reference collection than the main Open University Library.

The Centre also receives between 50 and 60 visitors each year from outside the Open University, some of whom make one or more return visits. Their interests are often similar to those of Open University staff, but many also require detailed information concerning the literature available on certain aspects of distance education and on the teaching of specific subjects in other distance teaching institutions. Neither of these categories of information is available on a comparable scale elsewhere. Each year, several postgraduate students are amongst the visitors to the Centre; their needs are usually intensive within a specific area of distance education or within a particular geographical area.

Many requests for information, far more than half of those dealt with in the course of a year, are received by post, telephone, telex or electronic mail. The people from whom requests are received can be roughly grouped as follows:

- professional colleagues requiring specific bibliographical information;

- potential students wanting information on courses in particular subject areas, sometimes in their own country, sometimes from institutions teaching internationally;

- postgraduate students, often interested in a specific aspect or process of distance education in terms of Open University practice, the practice of other distance teaching institutions, and the existing literature on theory and practice;

- researchers, often academic staff of other distance teaching institutions, writing papers or books, requiring information on the existing literature in their area of study;

- staff of conventional, on-campus institutions charged with developing distance taught programmes, requesting information on distance education at a general level, on particular areas such as course development and the use of media, the focus of the request dependent upon the stage reached in the programme. Information is also commonly requested on which institutions already teach in particular subject areas;

- staff of distance teaching institutions responsible for introducing new courses or new media into an existing distance taught programme.

Certain generalisations can be made concerning the Centre's responses to enquiries:

- some enquiries from inside the University, from visitors, or on the telephone from internal or external enquirers can be answered in a word or a sentence or at greater length without

recourse to reference books or to any other source. Each of the two full-time members of the Centre's staff has worked in the international area of the University since 1978, has met visitors from all of the major distance teaching institutions, is aware of current developments in the Open University and overseas, and has extensive knowledge of the literature of distance education

- the Centre acts as a clearinghouse for enquiries received by the University from overseas which are redirected by the Centre within the University and sometimes outside

- factual enquiries concerning addresses of organisations and institutions are answered from the Centre's extensive reference collection

- documents can be borrowed by University staff and in some instances by other visitors to the Centre

- documents can be loaned to institutions overseas with the cooperation of the Open University Library via the inter-library loan system. Requests for the loan of specific documents are sometimes received through the University Library

- copies of some documents, usually Open University publications, sometimes spare copies of publications from elsewhere, are distributed from the Centre

Each of the categories of response listed above concerns enquiries for a specific piece of information or a copy of a specific document. These are generally straightforward, and it is possible to utilise the resources of the Open University Library in addition to the Centre's own stock. Other categories of enquiry entail more complex responses:

- Literature searches are undertaken using the Centre catalogue and existing bibliographies, and through scanning reference lists of relevant books, journal articles, reports, and other available documentation. Annotated lists of references are drawn up and supplied together with information on how to obtain copies of documents.

- Responses to enquiries concerning factual information on distance teaching institutions are supplied wherever possible in the form of printouts from the Centre's computerised database. In cases where the database cannot provide sufficiently specific information, supplementary searches are made through the collection of directories and prospectuses.

Responses to enquiries in these two categories are very carefully considered, and replies are drafted bearing in mind the specific need of each enquirer as far as this can be judged. Potentially significant factors include the status of the enquirer, for example whether he or she is a student, or an academic or administrative staff member from a conventional institution or from a distance teaching institution, an institutional or a departmental head, and the country and area in which his or her institution is located. Such factors are important in gauging the quantity and the level of information which can usefully be

supplied, the likelihood of local access to recommended literature, and the difficulty of acquiring documents from other countries.

The extent and nature of use of ICDL have both changed markedly as its clientele has changed. The function of the original unit was to serve the staff members of the Open University Centre for International Cooperation and Services (1978-80). During the period of funding by the Steering Committee for the International Institute for Distance Learning (1980-81), the principal users were the 15 member institutions. Between 1981 and 1983, when the Open University funded ICDL, a great deal more effort was devoted to making the Centre better known within the University. Since 1983, there has been a considerable increase in the number of enquiries received both from inside and outside. The major part of ICDL's work is now done for individuals and institutions outside the UK. The number of enquiries dealt with during 1986 was between 1,250 and 1,500. A precise figure is very difficult to arrive at, for several reasons, and can be highly misleading without some qualification. Several attempts have been made in ICDL during the last eight years to count enquiries, but none has been regarded as providing an accurate reflection of the work undertaken. For example, a single enquiry may be answered in a few seconds without reference to any document; another may take several hours work using a selection of documents. An enquiry cannot be counted as a standard unit. It is sometimes difficult to determine what should count as an enquiry and what should not. Questions are often asked in casual conversation around the University which very closely resemble enquiries received from outside the University. Can they be regarded as enquiries? Similarly, visitors to ICDL frequently stay for more than one day and generally ask a great many questions. Are any of them true enquiries? They are not regarded as such in the figures arrived at for ICDL usage in 1986.

ICDL has received a great deal of favourable feedback from responses to enquiries from outside the Open University. One of the most encouraging signs is that external enquirers tend to use the information service a second and a third time, and that new users approach the Centre on the recommendation of existing users. Much has inevitably been learned from the users who actually come to the Centre. Weaknesses in collections and systems are rapidly exposed by users with widely differing interests and perspectives. As much as possible has been done to remedy shortcomings, but several cannot be cured immediately. The two major areas for improvement which will be tackled during 1987 are the production of a computerised catalogue, which will enable very quick and specific searches by subject, and the expansion of the existing computerised database to include more information and its transfer to a newly designed system which will allow much more flexible searching. The Centre's information resources will be revolutionised by these two developments.

2. Worldwide survey of documentation and information resources

The aim of this section is to paint a picture of the extent of resources worldwide so as to provide a context for section 3, which is focused on the countries of the Commonwealth. It will become clear that a very substantial proportion of the world's resources are in fact to be found in the Commonwealth. The arrangement is topic by topic; this section, in addition to providing an overall picture, acts as a key to the Commonwealth section, which is arranged geographically. It should be noted that only the names of documentation collections, databases, directories and other resources in Commonwealth countries are given in this section; additional information is presented in section 3.

- Documentation collections. The libraries of many distance teaching institutions collect literature on distance education to a greater or lesser degree. Only those collections which are known to be separately maintained, administered or recorded are listed below.

- **Africa**. None known.

- **Asia**

- India. Indira Gandhi National Open University (planned).

- Thailand. Sukhothai Thammathirat Open University. Substantial accommodation is set aside for a documentation centre, but as yet no plans are known. In 1983, the University was designated by Unesco the Lead Institution for the Consortium on Innovation in Higher Education for Asia and the Pacific. It seems likely that future activity in documentation and information will be linked with the Consortium.

- **Australasia**

- Australia. Deakin University. Distance Education Unit collection.

- **Europe (Eastern)**. It seems certain that documentation collections exist as part of university library collections, but no separately maintained collections are known.

- **Europe (Western)**

- Denmark. Aarhus Technical College (separate collection planned).

- Netherlands. Open Universiteit (separate collection planned).

- Spain. Universidad Nacional de Educación a Distancia (separate collection planned)

- UK. ICDL, International Extension College, MARIS, Open University.

- West Germany. Deutsches Institut für Fernstudien an der Universität Tübingen (DIFF). The DIFF Library collects widely in distance education and is particularly strong in German-language materials and in pre-current and historical documentation.

- Middle East

- Jordan. al-Quds Open University Project (separate collection planned).

- North America

- Canada. Athabasca University, Open Learning Institute.

- South and Central America

- Argentina. Asociación Argentina de Educación a Distancia. A collection has been begun, but no further details are yet known.

- Colombia. Ministerio de Educación. The existence of a documentation centre has been mentioned in Ministry publications for several years, but efforts to obtain further information have so far been unsuccessful.

- Venezuela. Universidad Nacional Abierta. A documentation centre exists, and publications have been received from it, but details of size and nature of operation, although requested, have not been obtained.

- Databases

- **Africa.** None known.

- **Asia.** None known.

- Australasia

- Australia. Deakin University Distance Education Unit DEDATA database.

- **Europe (Eastern).** None known.

- Europe (Western)

- UK. ECCTIS, ICDL, MARIS-NET.

- West Germany. Fernuniversität. A computerised system operates which contains references to 4,200 internal documents. A separate system contains data collected in the first stages of

an international project for which information is still being collected.

- **Middle East.** None known.

- **North America**

- Canada. Western Canada Committee on University Distance Education database.

- **South and Central America.** None known.

- **Directories**

- **International.** International bibliography of distance education magazines, journals and other periodicals- IBIDEM. A bibliography and location list prepared by R.Manfred Delling of DIFF, West Germany, who is currently collecting data for an updated edition.

The Commonwealth Secretariat has published two directories of distance teaching institutions.

- **Africa.** None known.

- **Asia.** Two directories have been produced by the Unesco Regional Office for Education in Asia and the Pacific. They are Directory of institutions of higher education in Asia and the Pacific engaged in distance education (1982) and Resource materials used in distance teaching by higher education institutions (1984).

- India. Association of Indian Universities 1984 Handbook of correspondence courses.

- **Australasia**

- Australia. Directory of tertiary external courses in Australia 1987.

- **Europe (Eastern)**

- East Germany. The central authority for distance teaching in East Germany, the Zentralstelle für das Hochschulfernstudium des Ministeriums für Hoch- und Fachschulwesen, located in Dresden, publishes an annual directory entitled Hinweise für Studienbewerber zum Hochschulfernstudium. The directory gives details of the distance taught courses offered in 20 universities.

- **Europe (Western)**

- Italy. The Associazione Italiana Scuole per Corrispondenza produces an occasional membership list, the latest of which contains the names and addresses of 120 institutions.

- Netherlands. The Ministerie van Onderwijs en Wetenschappen publishes a directory of distance teaching institutions, publicly and privately funded, entitled Studie-mogelijkheden in het erkende schriftelijk onderwijs. Details are included of courses offered by 40 institutions.

- Spain. The Asociación Nacional de Centros de Enseñanza a Distancia, Madrid, publishes an annual list of members, the most recent of which includes more than 70 privately funded institutions.

- UK. Open Tech Directory, Open learning opportunities in Scotland.

- West Germany. An annual directory entitled Ratgeber für Fernunterricht is published by the Staatliche Zentralstelle für Fernunterricht der Länder der Bundesrepublik Deutschland, based in Köln. Many of the 120 institutions listed are privately funded colleges.

- **Middle East.** None known.

- **North America**

- Canada. Canadian university distance education directory, University education at a distance: opportunities in Ontario, Sourcebook on telecommunications and distance learning in Canada.

- United States. National Home Study Council directory. A folded sheet listing all the NHSC accredited correspondence schools, with a brief subject guide.

Peterson's The independent study catalog: the NUCEA guide to independent study through correspondence instruction 1986-1988 lists more than 12,000 high school, college, graduate, and noncredit courses offered by over 70 colleges and universities, and includes a detailed index arranged by subject.

A useful, although inevitably increasingly out-of-date, guide to American programmes utilising audio-visual media is R.J.LEWIS (1983) Meeting learners' needs through telecommunications: a directory and guide to programs, Washington, D.C., Center for Learning and Telecommunications, which presents detailed accounts of 70 programmes, some of which employ distance education and open learning techniques.

- **South and Central America.** None known.

- **Other resources**

- **International**

- Research studies. Two separate projects based in the Open University have collected data which is of direct relevance to this report. The first, the Distance Education Information Project, was undertaken in the Faculty of Educational Studies. The broad objective was to ascertain the information needs of

practitioners in the distance education field. The methodology adopted was to write to ask heads of institutions to nominate a number of contacts in different areas of the institution. A set of vignettes was then compiled, based on functions and activities undertaken in the Open University. Vignettes were sent to nominated staff members in other institutions. A proposed second phase involved the examination of existing bibliographical services to determine the adequacy of their coverage of distance education. The final report (V.A.Winn and D.A.Bramer (1981) The Distance Education Information Project: concluding report to Director of Project, Milton Keynes, Open University Faculty of Educational Studies) does not contain the results of this examination. Its conclusions do not go far beyond reporting the diverse needs of practitioners working in different areas of distance education.

The second Open University-based project, undertaken by Professor Michael Neil for the Distance Education Research Group, was funded by the British Council following the University's Conference on the Education of Adults at a Distance in 1979, one of the principal themes of which was international collaboration. The two areas investigated in the project were the regular exchange of institutional information, its desirability and the form it might take, and possible areas for international collaboration. A detailed questionnaire was drawn up and distributed to distance teaching institutions worldwide. A first report was produced (M.W.Neil (1982) A research study on international collaboration between institutions of distance learning: draft interim report on phase I, Milton Keynes, Open University Distance Education Research Group), but the project was to some degree overtaken by events. In 1983, the United Nations University funded the establishment of ICDL's computerised database of basic information on distance teaching institutions. The database fulfils the information functions investigated by Neil's study.

The Fernuniversität Zentrales Institut für Fernstudienforschung, under the direction of Professor Börje Holmberg, is conducting a comparative study of distance teaching institutions worldwide. A detailed questionnaire was distributed in 1984 and a number of reports were subsequently produced, including one in English (B.Holmberg (1985) On the status of distance education in the world in the 1980s: a preliminary report on the Fernuniversität comparative study, Hagen, Fernuniversität ZIFF). A revised version of the questionnaire was distributed in July 1986. It is intended that the data obtained should eventually be computerised.

A survey of distance education worldwide based on a study of the data held in the ICDL computerised database in May 1984 was published by the Centre's Honorary Director, Lord Perry, later in

the year, under the title The state of distance-learning worldwide: the first report on the index of institutions involved in distance-learning.

- **Serial publications.** Journals, newsletters and accessions lists are invaluable information sources. Those which have truly worldwide coverage of distance education are About distance education, Distance education, the International Council for Distance Education bulletin, the International Council for Distance Education Women's International Network newsletter, the ICDL new accessions list, the Journal of distance education, and Open learning. The journals listed above specialise in distance education. Many others which are not listed contain occasional articles relating to distance education

- **Africa.** Distance education news and views: bulletin of the African Association for Distance Education.

- **Asia**

- Pakistan. Pakistan journal of distance education. Published by the Allama Iqbal Open University. Both issues produced so far appeared in 1984. The first was almost exclusively devoted to articles relating to AOIU, but the second contained several pieces from other countries.

- Thailand. Never too far: a newsletter for distance education. Described as 'an activity within the framework of the Regional Co-operative Programme in Higher Education for Development in Asia and the Pacific'. Published since 1983 by the Sukhothai Thammathirat Open University. Serves as an information link between Consortium members, but is of considerable general interest.

- **Australasia.** Distance education, ASPESA news, ASPESA Special Interest Group newsletters.

- Australia. Open campus.

- New Zealand. Distance Education Association of New Zealand (DEANZ) newsletter.

- **Europe (Eastern).** None known.

- **Europe (Western).** Epistolodidaktika is the journal of the Association of European Correspondence Schools, which has several information-related objectives, including 'to promote knowledge of correspondence education, its potentialities and achievements', 'to promote research into the methods of correspondence education', and 'to promote co-operation in exchange of ideas and research results between members'.

- UK. About distance education, ICDL new accessions list, International Council for Distance Education bulletin, OLS news, Open learning.

- **Middle East.** None known.
- **North America**
 - Canada. Journal of distance education.

- **South and Central America.** Asociación Iberoamericana de Educación Superior a Distancia boletín. This organisation includes more than 40 institutions in Latin America and Spain. The Boletín, published since 1983, contains theoretical and descriptive articles, all in Spanish.

3. Resources in Commonwealth countries

The Commonwealth Secretariat has published two directories of Commonwealth distance teaching institutions: INTERNATIONAL EXTENSION COLLEGE (1974) A survey of correspondence institutions in the Commonwealth, which gives details of 60 institutions in 17 countries, and J.JENKINS (1980) Correspondence institutions in the Commonwealth, listing over 150 institutions in 23 countries.

- Africa

- Document collections. None known.
- Databases. None known.
- Directories. None known.
- Other resources

- Distance education news and views: newsletter of the African Association for Distance Education. The only issue to appear so far was published in 1985. All of the Association's objectives relate to promotion of distance education and of research and scholarship, and to the dissemination of information, but the newsletter is the only known activity to date.

- Distance educator. Two issues of this journal have so far been published by International Council for Distance Education members in Kenya.

- Asia

- Document collections

- India. The Indira Gandhi National Open University is not only collecting literature on distance education but will have responsibility for providing documentation services to state open universities as and when they appear. It is not yet clear whether a separate documentation centre will be created or whether

distance education literature will be collected as part of the main University Library collection.

- Databases. None known.

- Directories. The Unesco Regional Office for Education in Asia and the Pacific, based in Bangkok, Thailand, has published two directories. The Directory of institutions of higher education in Asia and the Pacific engaged in distance education, published in 1982, based on replies to a survey, contains basic information on 50 institutions in nine countries. The Commonwealth countries included are Australia, India and New Zealand. The 1984 Resource materials used in distance teaching by higher education institutions contains data on the subjects taught, media used, and educational level of courses in more than 30 institutions in six countries, including Australia, India, New Zealand and Sri Lanka.

- India. The Association of Indian Universities 1984 Handbook of correspondence courses is an institution-by-institution list of the courses offered by university correspondence institutes and directorates and by Andhra Pradesh Open University.

- Other resources. None known.

- Australasia

- Document collections. Many university and college libraries almost certainly collect some distance education literature, but they do not maintain separate collections.

- Australia. Deakin University. The Distance Education Unit has a collection comprising several hundred documents maintained separately from the University Library.

- Databases

- Australia. Deakin University Distance Education Unit has developed a database of references (DEDATA) to the literature of distance education. It is hoped that this database will be developed in close cooperation with ICDL

Technical Extension Service, Perth. The August 1986 issue of ASPESA news reports that a grant of A\$15,000 has been allocated to the Technical Extension Service for a project entitled 'Interstate cooperation- data bank for the development and delivery of TAFE external studies courses'.

- Directories

- Australia. Directory of tertiary external courses in Australia 1987. Published by the University of Queensland School of External Studies and Continuing Education. Documents all Australian tertiary external credit courses.

- Other resources. The Australian and South Pacific External Studies Association was established in 1973. It includes amongst its objectives 'To disseminate information about research and practice in external studies'. To this end it began publication of the journal Distance education in 1980. This is an international, refereed journal. Invaluable local information appears in the ASPESA newsletter, now entitled ASPESA news. More specialised information is contained in the newsletters produced by ASPESA Special Interest Groups; examples include ASPESA telesignal: newsletter of the Telecommunications Special Interest Group, and the Counselling SIG newsletter. A journal which belongs here but is developing an international focus is Open campus, the journal of the Distance Education Unit of Deakin University. Armidale College of Advanced Education is engaged in obtaining funding for setting up an abstracting service covering the literature of distance education published in the ASPESA region.

- New Zealand. The Distance Education Association of New Zealand (DEANZ) is a new organisation which issues a newsletter.

- Europe (Western)- UK

- Document collections

- ICDL. ICDL first came into existence in 1978 as an information unit supporting the activities of the Open University Centre for International Cooperation and Services. Following the closure of the Centre in 1980, ICDL has continued to operate under a succession of different titles and funding arrangements. Since May 1983, funding has been provided by the United Nations University (UNU) based in Tokyo. The funding grant for 1986 totalled US\$59,500. In addition, the International Council for Distance Education (ICDE), which was involved in the establishment of ICDL under UNU funding, has given ICDL a special grant of C\$3,000 for the period 1986-1988 to indicate its continuing support. ICDL has been commissioned by external organisations to undertake several specific pieces of work under contract. For example, a bibliography on the current literature of distance education in Western Europe was compiled for the European Centre for the Development of Vocational Training (CEDEFOP), West Berlin, in 1985, and a report on the systems of distance education operating worldwide was written for the al-Quds Open University Project, Jordan, in 1986. ICDL's Honorary Director is Lord Perry, the founding Vice-Chancellor of the Open University. Two full-time staff, the Documentation Officer, Keith Harry, and the Information and Documentation Assistant, Nazira Ismail, run ICDL. There are two principal collections, one a documentation collection, the other a computerised database (described below under 'Databases'). The documentation collection contains around 10,000 items, comprising prospectuses and handbooks, research reports, conference papers, journals and individual journal articles, representative examples of course materials, and some books. The description of the forms of distance education literature which appears in section 1.1 of this report is based on

the contents of ICDL's documentation collection. The present card catalogue is being computerised during the first half of 1987.

- International Extension College (IEC). IEC was established in 1971 to provide information, consultancy and training on distance teaching. It operates two resource centres. The London centre comprises a collection of course materials produced by distance teaching institutions. It is extensively used by students from other countries who are participants on IEC's annual course on distance teaching in developing countries. The Cambridge centre is a collection of literature on distance education in all its forms, books, reports, journals, and others, amounting to approximately 5,000 items, which is an information base for IEC staff and is also used in responding to enquiries from outside. The College has always had particularly strong links with Africa, where it has been instrumental in setting up several institutions. The resource centre collections reflect these links and also IEC's predominant concern with developing countries.

- MARIS-NET (Materials and Resources Information Service Network). Subsequent to the development of its Database of Self-Study Materials (described below under 'Databases'), MARIS-NET established a collection of the materials themselves, the National Self-Study Materials Library, which currently contains around 1,100 items arranged broadly by subject.

- Databases

- ECCTIS (Educational Counselling and Credit Transfer Information Service), located in the Open University, is a Department of Education and Science-funded database which began as a development project and is moving towards becoming an established national service. It is not a database specifically concerned with distance education, but is briefly described here firstly because a version of the system on which it operates will be used later in 1987 by ICDL and secondly because the Manpower Services Commission TAP (Training Access Points) programme is commissioning ECCTIS to produce a compact disc containing the MARIS Database of Self-Study Materials. The ECCTIS database has been accessible on-line since the beginning of 1985. It comprises nearly 32,000 detailed records of courses available in the UK; 4,500 postgraduate taught courses, 11,500 first degree, 6,000 HND/Certificate, and 9,000 non-advanced further education. The database is accessible in a variety of ways, including direct on-line search, Prestel response frame, compact disc, microfiche pack, and telephone, as well as by post. It is planned that ICDL's database of information on distance teaching institutions should use a similar basic format to that which has been evolved to describe individual courses in the ECCTIS database. In addition, the ICDL computerised catalogue will be made available on compact disc, with new versions being produced on a regular basis. ECCTIS is a large-scale operation; in the month of August 1986 alone it dealt with nearly 11,000 on-line enquiries. Its original grant, for a three-year period, was £900,000.

- ICDL. The ICDL computerised database contains basic information on more than 500 distance teaching institutions all over the world, supplied on a specially designed standard form by the institutions themselves. It enables searches to be made in response to enquiries concerning subject areas taught, media employed, educational level of courses, entrance qualifications, language of instruction, and other aspects. It is intended that the quality of information be improved during the latter half of 1987 through the expansion of the categories of information currently held so that, for example, more specific searches can be made in relation to subjects taught by individual institutions.

- MARIS-NET (Materials and Resources Information Service Network). An Open Tech Programme support project managed by the National Extension College and based at Ely, Cambridgeshire. This is an on-line information service for training and education set up in 1983 with Manpower Services Commission funding. MARIS-NET offers three main services: searching databases, looking at viewdata pages, and electronic mail. Some of the databases are produced by MARIS-NET; others have been compiled by other institutions and are maintained upon the Network. Users pay an annual subscription which currently stands at £115, together with 10.5p for every minute spent logged in to MARIS-NET. The MARIS-NET databases include the Database of Self-Study Material and the Open Learning Bibliography. The former contains descriptions of nearly 9,000 training packs and other types of open learning material covering subjects relevant to the Open Tech. The latter comprises 1,000 references to documents of potential interest to those involved in any aspect of open learning. Almost all of the documents are published in the UK; many of them are also acquired by ICDL. Users can search the Bibliography on-line by author and by subject, making use of a purpose-made thesaurus. When Open Tech funding comes to an end at the end of March 1987, responsibility for maintaining the Bibliography will be assumed by the Scottish Council for Educational Technology. MARIS-NET derives an income from subscriptions and from database suppliers, who can in turn levy charges for usage. At present, on-line users of MARIS-NET occupy 5,500 minutes of access time per week; this number is expected to rise considerably in the near future when a Gateway system enables any Prestel user to access the Network.

- Directories

- Open Tech directory. The third edition is scheduled for publication in Spring 1987. The publishers, the National Extension College, anticipate that it will contain detailed information on over 1,000 courses and modules available from more than 150 projects commissioned by the Open Tech Unit.

- Open learning opportunities in Scotland. An annual publication of the Scottish Council for Educational Technology. The 1986 edition lists more than 500 open learning courses.

- Other resources. Several journals devoted to open and distance learning are published in the UK. About distance education is published by the International Extension College.

Its brief articles and news items frequently relate to developing countries; the editor of the International Council for Distance Education bulletin is employed at the Open University and the journal is published from the UK. The Bulletin's articles, news items, announcements and reviews provide a very useful source of current international information. Open learning came into existence in 1986 as the successor to the Open University journal Teaching at a distance. Its main focus is the Open University, but it includes other UK and international articles and reviews. The Council for Educational Technology publication CET news frequently contains articles and news items relating to open learning; the same organisation's OLS news has since 1980 been invaluable for its coverage of developments in open learning in the UK. The ICDL new accessions list is not a journal, but is published and distributed quarterly, publicising newly acquired documents and providing information on how to obtain them.

- North America- Canada

- Document collections. Both Athabasca University and the Open Learning Institute collect distance education literature in their Libraries, and each has many hundreds of documents. Although neither has a separate collection, there is great interest in the possibility of maintaining separate distance education catalogues.

- Databases. Both of the above institutions are keen to establish databases and have been working in cooperation with ICDL to determine formats and compatibility. The Western Canada Committee on University Distance Education maintains a database of information on courses offered by member institutions. There has been so much inter-institutional contact, and each course programme is so familiar to so many people that the database is now infrequently used.

- Directories. Canadian university distance education directory, published by the Canadian Association for University Continuing Education, is a well-established annual publication including details of the courses of nearly 30 institutions.

University education at a distance: opportunities in Ontario. 1986-87 calendar of distance education courses. Toronto, Council of Ontario Universities. The second annual edition of a directory listing in subject order the course offerings of 16 institutions.

During the latter part of 1985 and the first part of 1986, Ryerson Polytechnical Institute and the Federal Department of Communications cooperated in the compilation of a survey of distance education at all educational levels in Canada. A preliminary version was made available in 1986, and the final version will be published by the Department of Communications in early 1987 under the title Sourcebook on telecommunications and distance learning in Canada.

- Other resources. The Canadian Association of Distance Education was founded in 1983, in part 'to provide a vehicle for

the exchange of information, ideas and concerns relevant to distance education'. 1986 saw the publication of the first issue of the Association's Journal of distance education, an

international, refereed journal. Articles on distance education also often appear in the Canadian journal of university continuing education.

4. Problems, solutions, future developments

4.1. Organisation

Few institutions have chosen to create a separate documentation centre to deal with distance education, although there are good organisational reasons for doing so. The first relates to the forms in which distance education literature are published, which have already been described. There is a large proportion of semi-published and unpublished, 'grey', material which the conventional library will be reluctant to handle because much of it is obtained overseas, is free, and is not as easily handled, stored and processed as are commercially published books. The classification schemes which are adequate for large general libraries are not appropriate for specialised collections. In short, there are many reasons why it is simpler to administer a distance education collection separately from a large institutional collection. The Open University is unusual in having a documentation centre which is not under the control of the university library. The separation is due to the Librarian's view that the work carried out by ICDL is outside the remit of the Library.

Unfortunately, even where separate collections are maintained, full-time staffing is not always available. Small documentation centres tend to be looked after by staff who also have other duties. Full-time staffing is highly desirable so that uninterrupted work on the expansion and updating of the collection can be undertaken and so that the collection is continuously attended. Staff costs are the main budget expenditure in a documentation centre such as ICDL, whose annual budget of around £50,000 (1987 budget) includes provision for the bare minimum staffing of one Documentation Officer and one Documentation and Information Assistant. The Centre's other budget heads are book purchase and journal subscriptions, which along with consumables amounts to around £3,500 per annum; computer charges for rental, maintenance, development, storage and usage, currently standing at £2,500 (this figure is in no way a guide; each institution will have its own system of costing and charging); and travel and subsistence at £3,000. Additional charges which may or may not require budgetary arrangements are postal and telephone charges. Separate charges for postal services in particular could be very expensive, at least equalling the costs of books, journals and consumables. Further charges in other institutions will depend upon the individual circumstances and upon whether funding is from an internal or an external source. ICDL also enjoys very substantial technical support from the Open University Academic Computing Service for which no direct charge is made. It would be difficult to quantify this support in financial terms, but it is

certain that without this help the computerisation of the catalogue and the planned expansion of the existing computerised database could not go forward.

4.2. Bibliographic control and collaboration

The problems of collecting distance education literature have been discussed at length in this report. It is extremely difficult for one centre to maintain an adequate, current collection. One possible way ahead is for centres in different countries and regions of the world to concentrate on collecting documents produced in their own area, in addition to collecting more general material, and to transmit copies of records to other participating centres. This concept differs from that of the United Nations University regional resource centre, which concentrates on course materials. World coverage in terms of local collection of the literature is at present unfortunately patchy; by chance, much of the expertise and many of the resources are to be found in Commonwealth countries. There are also many practical problems associated with regional policies. For example, it is the experience of the International Extension College that it would be extremely difficult for any one African institution to undertake with any chance of success to collect documentation on a systematic basis from other African countries. A separately funded project, possibly introducing a specially selected project manager, is a potential solution. Political rivalries could also make selection of a mutually acceptable country or institution difficult to accomplish in some parts of the world. Fortunately, such obstacles are not encountered universally.

An information interchange mechanism is also necessary to ensure that any type of international cooperative system actually functions. There is a need for a central organisation to collect basic documentation, to coordinate exchange and act as a clearinghouse. To some degree, other institutions already rely on ICDL as a distributor of information. For example, the Centre's New accessions list is commonly used as a source of information on new publications in the very basic exercise of stock building and maintenance. This reliance is reflected in the International Council for Distance Education's strong expression of support for the Centre and its financial contribution.

Collaboration is an exciting prospect, but one that is fraught with problems on several levels. For example, any unit which wishes to be involved in a collaborative project is a part of a larger institution with its own objectives. The unit's first responsibility is to the institution it serves. ICDL is in a slightly different position from most units in that its funding is entirely external. It is therefore able to react more flexibly to collaborative proposals than units in some other institutions.

On a different level, collaboration is dependent upon there being compatibility between systems. Compatibility between computer systems has been very frequently referred to as a stumbling block in recent years, and this is still an important issue, but it is not the only area in which there must be some standardisation.

The informal working group on bibliographic databases mentioned earlier in the report has been able to achieve progress in establishing a standard cataloguing format. The next area for agreement is in subject indexing. The will to succeed is strong since each institution represented in the working group stands to gain considerably from a successful outcome.

4.3. The use of new technology in exchanging information

The rapid and exciting expansion of new technology is providing more and more opportunities and means of transmitting information. It is essential that new technology should be harnessed for information work wherever it can be efficiently and effectively used. It is equally essential, however, to bear in mind that many countries are totally unequipped to use new technology, and that others which may be able to use computers, for example, may not have a telephone system which functions adequately.

At the present time there are technologies which are only technically accessible to developed countries, particularly those such as electronic mail and computer conferencing which are dependent on telecommunications for inter-institutional and international links. Other technologies may be technically feasible in developing countries but financially impossible. In fact, even in institutions in developed countries where sophisticated communications technology is employed, it may not be accessible to departments which have not budgeted to use it. ICDL is in the fortunate position of being located in a building which houses one of the Open University's computing divisions, a division which has provided generous assistance in all ICDL's computer-related activities.

One of ICDL's principal planned activities in 1987 is to examine ways in which developing countries can benefit from the application of new technologies to information and documentation work. What are the new technologies which promise so much for documentalists and how can their benefits be extended to countries and institutions which cannot at present make use of them directly? Computer technology at different levels has many applications for information work. The ICDL computerised catalogue will enable very much quicker and more specific literature searches than are possible with the present manual system. The resulting printouts can be sent to any country. Unfortunately, institutions in many countries experience considerable difficulty in progressing beyond this point. Obtaining books, journals, reports and other forms of literature can present insuperable problems, often because of lack of funds, difficulty in obtaining foreign exchange, or the reluctance of suppliers to supply small orders. ICDL lends via the inter-library loan service, but borrowing is not an ideal solution. Making copies of documents brings an institution into potential conflict with copyright regulations, but would be a useful service. This is an area which requires careful investigation. Another new process which is available, Fax, copies documents from one machine to another in another institution or another country. Because it is based on telephone links, this system is also inaccessible to developing countries.

Institutions in countries where international telecommunications systems are established will eventually be able to search ICDL's database on-line, just as UK users can search the databases of MARIS-NET. An attractive alternative to on-line searching is the possibility of obtaining a compact disc containing the entire database. An institution possessing a compact disc player and microcomputer will be able to search the entire database in its own time rather than having to log in to the Open University's computer. This alternative will be available for the ICDL catalogue by the end of 1987. The holdings of other institutions can be incorporated into the catalogue both in the Open University computer and on compact disc. It is hoped that the existing database of basic information on distance teaching institutions will also eventually be on compact disc. Compact disc technology has the attraction for developing countries of not being dependent on the international telecommunications system. But it is expensive for an institution lacking external funding and it has the same limitation as ordinary printouts, namely that, at present, obtaining information is one step and obtaining documentation is another, quite separate, process.

Other applications of computer technology are currently of little direct relevance to developing countries, but have great potential for institutions able to communicate electronically. Electronic mail is a speedy way of ensuring that a message is transmitted directly to the addressee's mailbox, avoiding the eccentricities of the conventional mail and the costliness and uncertainty of telephoning. Unfortunately, electronic mail systems have their own problems. Two in particular were experienced in the course of preparing this report; first, the system can work technically but will not function efficiently unless mailboxes are checked and messages read regularly, and second, electronic links are subject to faults which cannot be corrected locally. Given these reservations, the system is extremely useful for information exchange. So too is computer conferencing; ICDL subscribes to the University of Guelph CoSy system in Canada, which enables participation in computer-based discussions and exchanges of information. ICDL contributes information on new publications to a distance education documentation conference. These applications of technology are already widely used in business and industry, and their potential is considerable for information work as well as for other areas of distance education. In terms of information, their effectiveness will increase as more institutions use them.

Prestel and related systems are used by a number of distance teaching institutions, in some cases for presenting general information on courses and admission procedures. It can present viable alternatives for presenting more specific information, however; for example, it would be possible for the ICDL catalogue to be accessible via MARIS-NET similarly to the Open Learning Bibliography. This type of system is only available in countries with sophisticated telecommunications systems. The same is true of computer networks such as the European EARN system which enables communications between computers rather than unilateral links with a central computer.

5. Summary conclusion

Distance education and open learning are proliferating, quantities of information and documentation are following suit, and new technology is rapidly expanding. Distance teaching institutions and international organisations are recognising the central role of good quality information backed by comprehensive documentation. Funding has traditionally been difficult to obtain for information and documentation; ICDL's funding for 1987 was not secure at the end of 1986, and the International Extension College's activities in this area have always depended on funding from consultancy income. The situation must change if adequate information and documentation services are to be established where they do not already exist, and if existing services are to be able to cope with increasing demands made on them through long-term planning made possible by the certainty of long-term funding.

It is recognised that cooperation and collaboration are essential for adequate worldwide coverage in terms of both information and literature. In the present situation this is only possible in developed countries, where individuals working in the field recognise the potential mutual benefits and have between them some of the resources required to put their ideas into practice. Resources are needed to assist developing countries in information-related activities, and workers in developed countries must evolve effective means of transmitting information and documentation to their colleagues in developing countries.

ICDL has been for several years playing the role of a central organisation, maintaining a core collection and monitoring developments and contacting new institutions and projects. Its information service is heavily used by institutions and individuals all over the world. Its accessions list is used by many institutions as the basis for building and updating their collections. The newly developed computerised cataloguing system will revolutionise ICDL's services and will it is hoped encourage cooperative acquisition and cataloguing policies.

PAPER 12

MEDIA IN DISTANCE EDUCATION

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1. Introduction

It is now 20 years since Wilbur Schramm and his colleagues published their seminal 'The New Media: Memo to Planners' (Schramm et al., 1967) which reviewed 23 case-studies of the use of 'new' media in education. The optimism of that document is still refreshing to read, but subsequent experience provides a more depressing picture. Most of the projects reviewed have long ago ceased to function. Some failed dismally. Others achieved considerable success in educational terms, but were wound up because of lack of political support or more often simply because the money ran out. Some have been overtaken by newer and more exciting technology (see Lyle, 1982). As Schramm and his colleagues realised even then, the use of media is insufficient on its own to make a project successful.

Unfortunately, the failure of many media-based projects has understandably led many planners to believe that for distance education, media (other than print) are an expensive luxury, best left alone (see, for instance, Samson, 1983). This assumption though is just as naive as the assumptions made over 20 years ago about the power of media to solve basic educational problems. Media do have a useful role to play in distance education. What is important is to be aware of their potential and their limitations, and even more so to understand the conditions that are necessary for their successful use. This paper tries to set out what is known from experience about the use of media in open and distance education, and in particular the conditions that must be met for their successful use in collaborative projects.

2. Review of Experience

I will not attempt to provide a systematic and comprehensive review of the literature on the use of media in distance education, although a bibliography is provided. Instead, I will adopt a more idiosyncratic approach, drawing selectively on the experience from these reports, concentrating on the main parameters or factors that need to be considered by planners.

There are text books on media selection (see for instance Reiser and Gagne, 1983; Romiszowski, 1974), but they are totally useless for planners of distance and open learning systems, since these books are based on an algorithmic, reductionist approach, resulting in tiny decisions at a classroom level, assuming no constraints other than pedagogic requirements. Planners of distance learning systems though have to live in the real world, where finance, politics, and the power of existing organisations all influence decision-making. So the first point to be made is perhaps a comforting if not very helpful one. There is no logical, step-by-step procedure for deciding on the 'best' media configuration or collaborative arrangements. A large number of factors, none of which can be measured or weighted scientifically, have to be taken into consideration. In the end, all these factors have to be thrown in and an *intuitive* judgement made. (Fortunately, human beings are quite good at this, provided all the factors have been thoroughly considered first).

Secondly, since the one common feature of most distance learning systems is that they are all different, this means there is no single optimum choice, either for the selection of media or for collaborative arrangements for using media in distance education. Each teaching system has to be custom designed to suit the circumstances in which it has to operate.

This does not mean though that there are no guidelines or experience to draw on. There are certain factors that have to be taken into consideration when deciding which media, and how much of each medium, to use. In other words, there is a checklist of points to consider.

3. Access

Of all the factors to be considered in distance learning, access and delivery is perhaps the most important. No matter how instructionally effective a particular medium might be, it is useless if it cannot get to the target audience.

The appropriateness of a particular medium, in terms of access or delivery, will in turn depend on the philosophy and aims of the distance or open learning system. Is the system aimed at all adults, or are there priority target groups? Is it aimed primarily at home-based students, or at students at work, or will students study primarily in centres? If the target group is all adults studying at home, the choice of medium will be dependent on what kind of equipment the vast majority of the target group will have at home. For many developing countries, this will be the radio set. For countries like Canada, Australia and Britain, it will mean a wider range of media, like television, postal services for print, radio, telephone and audio-cassettes.

If on the other hand the target group is to learn primarily at centres, equipment that can be shared can be provided: in developing countries, this could be terrestrially broadcast television, radio, and audio-cassettes; in developed countries, computers and video-discs. For countries spanning large or geographically difficult areas, and especially for co-operative projects spanning several countries, satellites now offer a realistic and low-cost system of distribution, although again in countries where most of the target group have low incomes, community or centre-based access is likely to be essential, rather than private reception. For instance, despite 100% of the population of India being within the footprint of the Indian satellite broadcast signal, only 5% can afford TV receivers, and much fewer direct satellite broadcast reception equipment (Agrawal, 1982).

Another point to be considered is the *quality* of access. While all students may have a radio at home, it will not be much use if the only times available for distance learning programmes are when the target group is asleep or at work. Similarly, there is no point in providing centres with expensive equipment like television sets, if they are unreliable or no-one knows how to maintain them properly. There is also a good deal of evidence (e.g. Scanlon, 1982) which indicates that study centre attendance leads to many practical

problems for students in using media (e.g. queueing) and can prove extremely inhibiting or even impossible for many students.

Another major factor affecting access across national borders is the problem of copyright, especially in broadcasting. The cost of clearing rights for use in another country can be both time-consuming and expensive, particularly if high quality broadcasts are to be used.

The wider the range of media to be employed, the more important become arrangements with other institutions, such as broadcasting or telephone organisations, for improving access to students.

4. Pedagogic issues

Unique characteristics of media

Before going any further, we should ask *why* we should use media other than print in open or distance learning. What can other media do that can't be done by print or face-to-face tutorials? This is a very difficult area to cover for a wide range of media in a short space, so I will concentrate on the unique educational characteristics of television, as an example.

We need to start by asking *why* is television (or any other medium) to be used, and for what *teaching purposes*? There are two important aspects of any medium. One is its appropriateness for *delivering* learning material to large numbers of students; the second is its *presentational* characteristics.

Distribution It may be that the aim is to take advantage of the *distribution* characteristics of television, by recording and distributing illustrated classroom lectures. If the main purpose is to get a high quality lecture to a large number of students around a country or region, or the latest information on new developments out as quickly as possible, or to up-date those with already a good grounding and basic understanding of a subject, then the illustrated lecture may be an acceptable use of television, since preparation time is about the same as for a face-to-face lecture, and, perhaps most important of all, it is a very cheap way of using television, since production costs are kept to a minimum. Stanford University, and more recently the National Technological University, in the United States, and the Chinese Central Television University, have all used television extensively for this purpose. If television though is seen primarily as a means of distributing lectures, questions need to be asked as to whether or not this might be done more cheaply and effectively by radio, or a combination of print and radio. The University of Wisconsin in the United States has for many years used dedicated *telephone* lines to local centres to do the same thing.

Presentational characteristics Each medium has its own presentational characteristics. Television has two different kinds. The first is television's ability to bring to distance learning students material not otherwise available, such as experiments

requiring expensive laboratory equipment, case-study material of social and technological events, field-visits, dynamic presentation of ideas through animation and graphics. Many more examples could be given (see Bates, 1984, pp. 244-247, for a list of such functions found appropriate in the Open University context).

The second is television's ability to help the learning process in unique ways. Television can provide concrete examples or models of abstract principles, can model processes, and through the combination of picture (usually providing the example) and commentary, relate example to principle. In other words, for many students there are often times when words are not enough; they need to be able to see to understand, and television is one way - in a distance learning situation often the only way - in which this can be done. (Salomon, 1983, suggests a number of ways in which television is particularly powerful in assisting the learning process, such as illustration, modelling, and providing alternative ways of thinking about subject materials that students would have difficulty in generating for themselves.)

However, to use television to exploit fully its presentational characteristics requires much larger budgets than for just relaying lectures, and relatedly, a much higher level of production professionalism. This is more likely to be achieved through collaboration with a broadcasting organisation, provided the broadcasting organisation does have that expertise in the educational area (which is not always so).

Production styles and the design of distance learning materials

Each medium can also vary in the way materials are produced. Television programmes made by broadcasting organisations generally tend to have a unity of their own, independently of even media to which they are directly related. Broadcasts tend to adopt a continuous flow, deliberately being constructed to hold the viewer's attention right through the programme, and often provide material not otherwise available to the viewer or teacher, thus exploiting the unique presentational characteristics of the medium.

Video, though, while concentrating on the unique presentational characteristics of television, can be structured quite differently from a broadcast programme, particularly if it is intended to exploit some of the *utilisation* characteristics of cassettes. Thus television material can be made in short independent segments, with clear stopping points, explicit directions for activities or questions for discussion. This is even more true for audio-cassettes, in comparison with radio.

Lastly, television or radio programmes may be either completely pre-recorded, or include a *live* element, including feedback or questioning from students, or exchange of materials from different sites. There is no technical reason why live interactive programming cannot be done using terrestrial broadcasting, but due primarily to scarcity of time on terrestrial networks, such use has tended to be

confined to cable or satellite broadcasting, as in the case of Knowledge Network in British Columbia, Canada.

Media differ considerably in the extent to which they encourage active learning. Generally, broadcast television is so designed that it is difficult for learners to interact overtly with the programme material, at least during transmission. Live interactive programming provides a form of surrogate interaction for viewers, but is still limited. Cassettes allow for much more interaction, often at a sophisticated level of response, such as discussion or open-ended responses from learners. Computers are considered to be the most interactive medium after 'real' teachers, but computers may restrict the level of response to fairly mundane activities, such as multiple-choice or menu selection. The extent to which any particular medium encourages interaction or active learning depends to some extent on the way it is designed, but is also determined to some extent by the nature of the medium. What is clear is that the design of multi-media distance learning materials which encourage active learning requires considerable *instructional* as well as *programming* expertise. An understanding both of media and learning is required.

Learning from media

In the end, though, do people learn just as well through modern media as through the more traditional face-to-face teaching or books? Do they learn just as well as from, say, television as from lectures? Yes, students can learn just as well, if not better, from television, but *what* they learn, and how effectively, depends on the design of materials.

There is a good deal of research evidence which suggests that *content* may be learned just as well through any medium (see for instance Olson and Bruner, 1974; Clark, 1983). However, media differ in the *kinds* of learning they encourage. Thus in general, print is best for teaching in a condensed way, dealing with abstract principles, where knowledge of detailed facts or principles is important, and where knowledge is clearly defined. Television on the other hand is much better for presenting complex or ambiguous situations, for providing concrete examples to illustrate abstract ideas or principles, and for encouraging students to make their own interpretations and to apply what they have learned in an abstract way to new situations (see for instance studies done by Salomon, 1979, 1983; Bates and Gallagher, 1987).

The extent to which television is successful in doing this depends on how programmes are made. Television is rarely best used as the prime medium for delivering large quantities of information; instead, it is much more valuable for providing deeper understanding and for developing skills of analysis and application of ideas presented through other media, particularly print (see Salomon, 1983). If the programme is designed to give concrete examples of abstract ideas, it is necessary to make the relationship explicit. Open-ended documentary style programmes, bringing in case-study material for analysis by the student, can help develop students' skills at

applying and interpreting what they have learned (see Bates and Gallagher, 1987).

Because television is such a familiar medium, it tends to be taken for granted that students will know how to learn from it. This is not the case. There is evidence (Bates and Gallagher, 1987) that students need help and guidance to use television, particularly where comprehension is not the main purpose. Most students approach television as if it were a lecture, unless the programme is made in such a way as to encourage them to question and analyse what is being presented to them. This may mean building in stopping points for discussion, direct questions on the commentary, replaying sequences with different interpretations, etc. Television can be a very passive medium. For individual learners, this can be avoided by designing the programmes to encourage frequent interaction with the material through relevant activities. The most effective way to get the most out of television material, though, when interpretation and application are the main aims, is through group discussion, guided by relevant questions for discussion (see Durbridge, 1982). This is one reason why live, interactive programming, even for rather straight television lectures, is so important.

Professionalism

If the aim is to exploit the unique *presentational* characteristics of television or any other medium, then three kinds of expertise are required. The first is knowledge of what that medium can do, related to the subject matter to be taught. This is important, because a skilled television producer or computer programmer may be able to suggest ways of using television or computers which would never occur to a teacher without any experience of using these media. The second is knowledge of the subject matter, and valid and effective ways to teach that subject matter. The third is expertise in instructional design, how to integrate for instance television material with the other teaching material, and how to help learners get the most from the various media. These three kinds of expertise rarely exist in one person; therefore a team approach is required, where those with different expertise work together to create the whole package. The most obvious case of this is the British Open University, where subject experts, print editors, television producers, computer experts and instructional designers all work together. The team approach though takes time, and costs money.

Most media are not homogeneous, but can be used in many different ways, according to the learning context and the teaching aims. To get the best out of media requires a professional approach. It is essential that before deciding whether or not to invest in a particular medium, their pedagogic characteristics, and the need to provide professional support, are fully understood.

A question of quality

Despite the difficulties and the extra costs incurred, there is no doubt in my mind that media such as television and computers have an important and valuable role to play in distance learning. Many of

the weaknesses of ephemeral broadcast television can be avoided by recording material in a permanent form, and even more so by designing material to encourage interaction and active learning from the students. Some of the high costs of computer-assisted learning can be reduced by buying courseware from other organisations and by providing terminals or micro-computers in local centres. Satellites make networking of centres across large distances economically viable for both television and computing, once the basic satellite infra-structure is in place.

Distance learning courses can be designed without a television or computing element. However, a well-designed television component can not only help reduce drop-out and increase comprehension, it can also assist the development of higher-order learning skills. Computing can provide practice, revision and reinforcement of both knowledge and skills. In other words, such media can increase the quality of distance learning. There is however a high price to be paid for this, as we shall see.

5. Costs

Of all the factors, this is the most tricky, because of the problem of defining exactly what counts as a cost in distance education. (For a good review of this area, see Perraton, 1982, and Rumble, 1986). For instance, broadcast transmission costs might be offered free to a distance teaching organisation (e.g. ACCESS Alberta, for Athabasca University), or it might be charged at marginal cost (e.g. BBC transmission of Open University programmes) or it might be charged at full commercial rates (e.g. Pakistan Radio for the Alama Iqbal Open University radio programmes). The nature of the financial arrangements between collaborating institutions becomes critical in determining the costs of distance education. Who pays for what?

Most of the literature on the costs of media (e.g. Laidlaw and Layard, 1974; Jamison, Klees and Wells, 1976; UNESCO, 1977, 1980, 1981; Wagner, 1982) adopt what I call a capitalist, 'rational' macro-economic approach to costing media. However, while investment in education at a national level may be considered 'rational' in free market terms (if one holds that ideology), such an approach does not usually make sense in terms of *managing* a distance education system, since budgets may come from a variety of different sources and their utilisation may be non-negotiable. For instance, if a government in a developing country controls the broadcasting system, and decides to make a certain amount of its facilities available to a distance teaching organisation, it does not make sense for the distance education institution to ask for cash instead to increase print production. The cash is not there; instead an existing resource is to be used for a different purpose. What is more important is to be aware of different *kinds* of costs, and particularly the secondary costs that are likely to fall on a teaching institution as a result of using media, whether offered free or purchased at market prices, and those costs which are within the power of the distance education system to control.

Costs of media in distance education need to be broken down in

several ways. First of all, it is important to distinguish between *fixed* and *variable* costs. The cost of running an in-house video or print production unit is likely to be fixed. The staff for instance will have to be paid whether or not the unit produces a large or small amount of work. The BBC estimates that somewhere around 80% of the cost of providing broadcast services for the British Open University are fixed. On the other hand, costs of *distribution* for print are likely to be variable, i.e. they will depend on the number of copies mailed. Broadcast television distribution costs though are fixed, in that the cost of a broadcast transmission is the same, whether it is watched by one or a million. Some activities can be both fixed and variable. Television production for instance can be divided into fixed costs (e.g. utilisation of a studio, which has to be paid for irrespective of its level of use) and variable costs (the extra costs incurred each time a programme is made). Once a programme is made, though, its total production costs are fixed, irrespective of the numbers who use it. (This also applies to texts: design costs are fixed for a particular text, there will be variable costs for each new text produced, while printing and distribution are always a variable cost). This is why it is often much cheaper to buy in material than to produce it oneself, since it is only the variable costs which have to be paid for (strictly speaking, the cost of bought-in material usually includes a cost factor to cover some of the overheads, but it is averaged out over all production, not just those bought by the institution).

Media differ in the relationship of fixed to variable costs. Face-to-face teaching has relatively low fixed costs and high variable costs; print has relatively high fixed costs, and relatively low distribution costs; broadcast television has very high fixed costs, and very low variable costs.

Does this division matter? Very much, because the economics of using media depend to a large extent on the division between fixed and variable costs, the range of material produced, and the numbers of students using a particular media component. The greater the number of students using a single component, or the more media components produced (e.g. the more television programmes produced), the more effective it is to have high fixed costs and low variable costs. Thus if the distance education system has very large numbers of students (i.e. well over 1,000) following a specific course, it pays to use media with high fixed costs and low variable costs; for small-scale distance education institutions not expecting to expand numbers greatly, media with lower fixed costs may be better, even though the variable costs may be higher. It should be noted that some of the newer technologies, like video-cassettes, radically change the fixed-variable ratio for a medium such as television. The consequence of this is that if broadcasting is to be used, it can be justified on economic grounds only if there are very large numbers of students or viewers intended to watch each transmission. The establishment of a special department for making broadcasts for a distance education institution can be justified only if it is to produce large numbers of programmes per year (e.g. over 200). This is not to say that television is necessarily inappropriate on cost grounds for small institutions; however, other modes (in this case, low-cost

video-cassette production and distribution) would be more appropriate. In some cases, where few programmes are made, but each programme will be used by large numbers, it will be better to buy in just the necessary production from outside, but still use transmission.

Before entering into any collaborative arrangement with a broadcasting institution or a publishing company, managers of a distance learning system should be very clear about the balance between fixed and variable costs, the likely amount of production to be required, and the likely numbers of students to use the various media.

Another distinction that has to be made is between costs at different stages of media use. The main cost areas are:

- production
- distribution
- costs for utilisation (e.g. equipment)
- student costs

Production costs can vary enormously. Using television to relay lectures is very cheap, once a studio is installed and manned. Exploiting the unique presentational features of television will require more expensive productions. However, costs can be kept down by using low-cost production and editing equipment. Full-scale broadcast production on the other hand will be expensive. For the latter kind of programming, production costs are likely to exceed distribution costs by a factor of at least 50 to 1. Being offered free transmission time on a satellite is no big deal then if the cost of production has to be found.

In developing countries in particular, the cost of reception equipment would normally have to be included as an essential part of any project using television or computers, since students would not normally be able to find this cost for themselves.

The cost of reception equipment is significant:

'The constraining factor in large-scale growth of the INSAT-I utilisation is essentially the investment involved in provision of community TV receivers, direct satellite reception of VHF type, and rebroadcast transmitters.'

Dept. of Space, Govt. of India, 1983

On the other hand, if the distance teaching system is responsible for supplying equipment for learners (e.g. television receivers, computers), then these hardware costs can well exceed both production and transmission costs, since to justify high fixed costs (and both broadcast television and computer-based learning have high fixed costs) large numbers of students will need to use the material - requiring large quantities of hardware, if that is to be supplied.

For this reason, it is not a good idea to depend on media which

require hardware provision for students (even at centres) unless the fixed and variable costs of the medium are low (audio-cassettes and even more so radio are good examples of media with low fixed and variable costs).

Lastly, an important consideration is the extent to which students are expected to meet the cost of using media. Who pays: the institution or the student? What would the effect be on enrolments if students have to supply their own equipment? Will students be expected to travel to face-to-face tutorials - or pay their own telephone charges to call a tutor? These are matters of policy, not often implemented consistently in individual institutions, but they can affect considerably the costs of studying in distance or open learning.

It is too simple therefore to see certain media (such as television) as being expensive, and others (such as print or face-to-face tuition) as being cheap. It depends on the system configuration. With large numbers of students, and a suitable means by which students can access material, broadcast television may be justified economically, especially if the responsibility for production and or distribution costs lie with the broadcasting organisation. In other contexts, video cassette distribution might be appropriate. In really poor countries, radio, perhaps backed up with audio-cassette recorders at centres, might be the most feasible medium economically. If the fixed costs are included (e.g. the cost of academic time), print may not be all that cheap to produce, and quite expensive to print and distribute, depending on the numbers involved. Lastly, the economics will be muddled by the assumptions and policy decisions made by governments and other agencies as to which costs will fall on the distance education system, the student, or other organisations. Despite this, a careful cost analysis, based on disaggregating costs and separating fixed and variable costs, can be most helpful, and ought to be an essential step before entering into collaborative arrangements.

6. Organisational issues and collaboration

A key factor in deciding which media to use is whether available organisations can reliably produce and/or deliver high quality materials. For instance, it is no good relying on print if the postal service is unreliable, or does not reach key target groups. Broadcasting might be expensive, but if the organisation has a reputation for reliability and quality, that is an important factor to take into consideration.

It is also better to work with organisations that are committed to the project, willing to work with media, and prepared to be flexible, than with institutions who do not believe either in the project or in the use of media. At this point, something needs to be said about dual-mode institutions. These are institutions which combine conventional on-campus universities with off-campus teaching, using distance teaching methods. Deakin University in Australia is a good example of a dual-mode institution, providing on-campus teaching in Geelong, Victoria, but also distance learning courses for students

across the whole of Australia. Dual-mode institutions are common in Canada, Australia, New Zealand, Scandinavia and the USA.

One of the problems of dual-mode institutions is that conventional academics usually get little or no reward for working on off-campus activities. Furthermore, many conventional university staff have no idea how to use media sensibly for educational purposes, as they rarely use media in conventional teaching. In distance education, though, it is not a question of whether or not one *should* use media, but rather *which* media should be used. Locating distance education activities within a conventional university can lead to all kinds of problems, unless it is independently financed and unless it provides career advantages and professional training in distance education to those who work in it.

For instance, distance education requires dramatically different ways of designing and delivering courses using media, from conventional university courses. Greater budgets need to be given to operational and production areas, media managers need to have a major role in decision-making, and structures (such as course-teams) need to be designed to encourage integration of media. These requirements often cut across traditional academic power bases in conventional universities, especially academic departmental structures, and hence tend to be strongly resisted.

All these factors have major implications for the structure of collaborative projects, and particularly for deciding on which institutions should be involved. A number of management models have been tried to integrate media in distance learning projects:

In-house production

A distance education institution produces (and perhaps distributes) its own media. This is common with both print and computer-based learning, less so with television, although even this is not unknown (e.g. Fernuniversitat, Deakin University). In-house production is particularly popular with dual-mode institutions, where an A/V or computer department already exists to serve on-campus students. It is worth noting that the British Open University has in-house academic computing services (separate from administrative computing services), and in-house print design, but external printing (because of high volume). Broadcast television is nearly always produced and distributed by a broadcasting organisation, and not in-house. The advantages and disadvantages of in-house production of media can be summarised as follows:

Advantages

1. Control over costs and production lies with distance teaching institution
2. Low-cost

Disadvantages

1. Especially (but not exclusively) in dual-mode institutions, media production (other than print) is often given lower priority than academic activities, hence tendency for underfunding

2. With underfunding, often small quantities of production, quality poor and hence non-print media tend to be peripheral
3. Collaboration with external agencies more ad hoc, and hence tendency not to use existing external facilities to the full, resulting in duplication of efforts

Partnership

A distance education institution goes into partnership with a broadcasting organisation, at least as far as distance learning activities are concerned. This is the basis of the relationship between the British Open University and the BBC. There is a contract between the two institutions. The BBC guarantees to produce a certain level of programmes for the Open University and guarantees to transmit these programmes on a national network. The Open University pays the full cost of this, and guarantees to supply an adequate quantity of academic material for production. BBC producers are full members of the course teams, contributing towards the content of the course. The BBC retains final editorial control and responsibility.

Advantages

1. Access to national transmission, and hence high visibility for the OU, as well as cheap distribution to all target group
2. High reliability and a high quality product, from department specially set up and devoted to OU needs
3. Imaginative use of television appropriate to academic needs, through course team model

Disadvantages

1. Very high cost (£10 million per year, 15% of budget)
2. Editorial control with BBC; programmes not always seen as relevant by students

Co-operative models

The essence of this model is several independent institutions coming together for specific projects to combine complementary resources. There are few examples of this with regards to media in distance education, although there are examples in educational broadcasting. For instance, in Sweden, the national broadcasting organisation, two correspondence schools, two adult education organisations, and a publisher got together to design and deliver a set of courses for teaching English ('Start'). The BBC, the National Extension College, and local colleges of further education have combined resources in the U.K. to produce a number of multi-media adult education courses (e.g. in adult literacy and computer literacy). The tendency has been in this model for the broadcasting organisations to take the lead, with other organisations providing support for the broadcast element.

Advantages

1. Each organisation does what it does best, without too much interference from the other organisations
2. Learners get a 'rich' package of learning
3. Existing resources are maximised without duplication of existing facilities

Disadvantages

1. Tends to be ad hoc and limited to a small number of courses in any one year, because of the effort required in getting everyone together; hence no coherent package of courses (like a degree programme) possible
2. Depends perhaps too much on goodwill alone between different (sometimes competing) organisations
3. Usually one dominant partner (the broadcasting organisation) which everyone else has to follow

Open Access

The essence of this model is the provision (by government) of a communications infrastructure to which different distance learning institutions have open access (as of right). This model is being developed in British Columbia (Canada). The provincial government has established and finances an educational communications authority (Knowledge Network), which is essentially a television network based on cable and satellite television. This network is available to any provincial educational institution, including the various distance learning institutions (Open Learning Institute, the three (dual-mode) universities running distance education programmes, and one or two local colleges (e.g. North Island) running distance education courses). It is the responsibility of the individual institutions to enrol and accredit students, to provide programming, and to run the rest of the distance learning system; Knowledge Network just provides the means of delivery. To ensure greater utilisation and co-ordination between the various providers of distance education and Knowledge Network, the provincial government has created the Open Learning Authority of British Columbia, with one common board over all distance learning activities.

Advantages

1. Guaranteed access to province-wide television distribution at no cost for distance teaching institutions, giving wide publicity to their activities
2. Editorial control lies with the distance teaching institutions
3. Relatively low cost to run (£2 million a year)

Disadvantages

1. No money for production; hence low-quality in-house television production or over-reliance on bought-in productions
2. Lack of coherence and still impossible to take degree solely by distance education methods
3. Several small institutions duplicating functions (e.g. printing)
4. Lack of expertise within distance education institutions on how best to use television for distance education

It can be seen that each model has its strengths and weaknesses, but that the actual pattern of co-operation usually depends on an existing set of institutions getting together (sometimes to prevent new institutions being created which may threaten existing

institutions' activities) or on conventional universities developing new or reinforcing existing distance teaching activities.

The creation of completely new institutions like the British Open University, of sufficient power and autonomy to by-pass existing institutions, is rare in developed countries, but not in developing countries. Perhaps the most successful new open university in recent years is Sukhothai- thammithirat Open University in Thailand (STOU), with nearly 200,000 students and a reputation for efficiency and good quality materials. STOU uses radio extensively, and increasingly television, collaborating with independent broadcasting organisations.

There is a great deal to be said for creating specifically designed large distance education institutions in countries where there is a severe shortage of higher education places or considerable dissatisfaction with existing provision. However, this is at least initially a high cost option, although STOU now has so many students that it recovers 80% of its costs in fees, and hopes to be financially self-supporting in a few years.

Conclusions

It can be seen that not only is the nature of the organisational structure very important, but that each model has its own strengths and weaknesses. Nevertheless, a number of general points can be made.

With media production, you get what you pay for. Too often too much emphasis is given to distribution, and not to production. Producing large quantities of high quality media is expensive. It needs money, on a recurrent basis. On the other hand, distribution systems in comparison are relatively cheap. Many of the models (e.g. the open learning system in British Columbia) avoid putting money into media production, hoping that somehow, high quality materials will get produced once the distribution system is in place. They will not. Using existing broadcasting resources is one way of avoiding new production costs. This though is dependent on the broadcasting organisation having the right sort of expertise within the educational sector, is willing to re-direct resources away from other areas to the production of distance learning materials, and requires a structure which enables broadcasters and academics to communicate with and understand one another.

Quality production requires quality staff, i.e. staff who understand the characteristics, strengths and weaknesses of the media in which they work. There is no substitute for professionalism. One reason why media other than print have been so little used in distance education is because academics are unaware of how to use visual media properly, production centres have generally been underfunded to provide quality productions in sufficient quantity to make an impact, and because professionals in media such as broadcasting or computing do not always understand the requirements of distance teaching. It is better not to use television or computing at all, than to use them badly (see for instance O'Shea and Self, 1983).

Getting different institutions to collaborate in the field of media is difficult. Professionals in different areas have different values and priorities. Broadcasting in particular is seen as a mass medium, requiring large audiences to justify the high costs, and broadcasters tend to defend their editorial control to the point of arrogance. In general, broadcasters have also been reluctant to move into non-broadcast production, and adapt production styles accordingly, despite its advantages for distance education. Non-broadcast video is only relatively cheaper than broadcasting; quality production is still expensive, and still requires people who understand the medium. The same applies to computer-based learning. Whatever organisational structure is set up, therefore, it has to provide sufficient funding for the media activities, and structural mechanisms which enable media professionals to communicate with and influence academic colleagues (and vice-versa) in the process of course design and production using media. These structural mechanisms (such as course teams) do not happen by accident, but have to be planned and designed specifically.

Buying in materials from other institutions can be useful, but needs to be done with great care. Students find it difficult enough to learn from indigenous productions; language and cultural problems associated with imported programmes increase student learning difficulties (see Agrawal, 1986, and Calvert, 1986, for instance).

In terms of costs, radio is likely to be the cheapest for large numbers, and audio-cassettes for low numbers, on a specific course (see Bates, 1982). However, audio-cassettes are likely to be much more effective than radio (see Bates et al., 1981). Print is more expensive, and more effective, for straight comprehension, especially if combined with audio; non-broadcast television is suitable at relatively high cost for courses with relatively low numbers of students, where students have problems in comprehension from the text, or where higher level cognitive skills are required. Broadcast television can do the same as non-broadcast television for high numbers of students, but at much greater cost, and less effectively than video-cassettes. Computer-based learning is likely to be extremely expensive both to produce and deliver, for either small or large numbers, having high fixed and high variable costs.

Lastly, it is clear that if a wide range of modern media are to be used, not only will adequate funds have to be found, but scarce expertise as well. This will not be achieved by different institutions without that expertise combining efforts; either a collaborative partner will have to be found with that expertise, or the expertise will have to be trained or bought in (and that will be expensive).

Basically, there are two kinds of collaborative approaches, with two different approaches to media, that could be considered, giving four possible models. The two collaborative approaches would be either one which seeks to take responsibility within the collaborative model for production as well as distribution of distance learning material, or one which does not attempt to produce material, but merely to buy in and distribute it. The two approaches to media would be high or low

profile, i.e. to use a wide or restricted range of media. A low profile use of media would lead to relatively low-costs, but probably also poor quality teaching. A model that took responsibility for production as well as distribution would have higher costs, but probably more relevant and better quality material. You pay your money and you take your choice.

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PAPER 13

TRAINING OPPORTUNITIES FOR COMMONWEALTH DISTANCE EDUCATORS

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CHAPTER THIRTEEN

1. Introduction

This paper attempts to survey the possibilities for training in distance education open to people working in this field in Commonwealth countries. These range from programmes tailor-made for the staff of specific organisations to self-study courses offered by institutions and associations both inside and outside the Commonwealth.

The training programmes covered can be divided into three broad categories:

- (a) those which take place at the organisation where the trainees work, or are offered by/for a regional group of such organisations, or take the form of a training attachment to a different distance-teaching institution;
- (b) face-to-face courses for participants from a variety of different institutions, not necessarily from a particular country or region;
- (c) training offered at a distance, generally by correspondence, and open to anybody, anywhere, who fulfils the entrance requirements (if any) and can pay the fee for materials and tuition.

The following sections comprise a catalogue of these various kinds of training, which does not, however, claim to be exhaustive.

The need for training for distance education professionals is widely and increasingly recognised. It has been well expressed by the Unesco Regional Office for Education in Asia and the Pacific:

'... the lack of trained personnel to develop distance education materials is a stumbling block. Most of the people working in distance education have come from the formal system and are attuned to the methods of traditional education. Their new roles demand a new set of skills and attitudes. Personnel must be reoriented and retrained for their changed task. Qualified producers, scriptwriters, technical support staff and presenters are all required.'

(ROEAP Bulletin No. 26
December 1985, p.39)

Two of this Unesco Regional Office's activities are relevant in this context. Its Asian and Pacific Programme of Educational Innovation for Development, which functions through a network of institutions in member countries, has held meetings on training needs (Pakistan, 1983)

and workshop training methods for distance education (Sri Lanka, 1984). Its plans for 1987-1991 include a proposal for 'personnel training methodology for countries recently starting distance education'. Its Regional Higher Education Consortium, a network established in 1982, has identified innovation/distance education as one of its activities. It held a training workshop in the development of distance education instructional materials in Thailand in 1985, which was attended by participants from Commonwealth countries.

The Distance Education Association of New Zealand, also, has set up a committee to review and extend training offered by institutions, as part of its goal of disseminating distance education skills more widely and improving the quality of distance learning and teaching in New Zealand.

On-the-spot training programmes for the staff of individual distance teaching institutions have been part of professional staff development ever since the governments of developing countries started asking institutions in donor countries to help them launch such institutions. The International Extension College began seconding staff to such new projects in the early 1970's, for periods of up to two years. One of the most important objectives of such secondments was to train local staff to take over the running of the project as soon as possible. Examples of such programmes will be given in the next section.

On-the-spot training does not, however, offer the staff concerned the opportunity to share their experiences or pool their resources with those of other institutions. A more recent development, which does enable this sharing to take place, is that of the regional workshop. Such workshops have so far been mostly concerned with the development of course materials, but there is no reason why they should not in future be organised for other training purposes.

Another approach to the training needs of individual institutions is for key staff members to be attached to another institution, generally in a donor country, for several weeks or months. Although this may give the people on attachment a helpful insight into the way things are done in a longer-established programme in a richer country, it may not provide them with the most relevant possible training experience.

Face-to-face, or residential, training courses for distance educators are few and far between.

The area which is really burgeoning at the moment is that of self-study courses. There are several, fairly obvious reasons for this development. First, by offering training at a distance, we are practising what we preach, doing what we claim to be able to do best, and offering students the chance to experience being distance learners themselves. Second, most distance education staff are more likely to be able to enrol in such a course than to attend a residential one, both because it will probably be much cheaper and because it can be undertaken without the necessity for leaving their posts. A third reason is that there is currently no other way of achieving a professional qualification in distance education. It is remarkable

how many of the self-study courses recently introduced, or in the process of development, offer a diploma. Clearly members of the profession feel the need for such a qualification, whether or not their employers do.

From the point of view of the institutions in the field, there appears to be a growing awareness of the need to share experiences with others, both for training and for other purposes. Such exchanges between institutions in the same region are relatively inexpensive, but sources of funding are not obvious.

More funding would also be useful for face-to-face courses bringing together people from a wide range of programmes in different parts of the world/Commonwealth. Distance education is now a sufficiently important activity to justify training courses of this type on specific topics, such as audio production, research and evaluation, printed materials, administration, and the adoption of new technology. We shall return to this suggestion in the final section of the paper.

2. Training for Specific Institutions or Regions

(a) On-site Training

International Extension College (Cambridge, England)

IEC has undertaken on-site training for the following Commonwealth institutions:

Mauritius College of the Air

Botswana Extension College (now the Department of Non-formal Education)

Lesotho Distance Teaching Centre

University of Lagos

Namibian Extension Unit

South African Extension Unit

University of Nairobi

Department of Non-formal Education, Southern Highlands, Papua New Guinea

In most of these cases IEC has been active in the actual setting-up of the institution and has recruited expatriate staff to help to get the operation going and assemble and train a nucleus of local staff to continue to run it. Such training has included outside training for short periods, but most of it has taken place on-site, and has consisted of two main components.

- On-the-job training is the method by which most skills have been learned and developed by full-time staff.
- Short training workshops have been found particularly useful for part-time course writers, new to the requirements of distance education, and people preparing audio materials.

The workshop pattern of training has been IEC's main contribution to organisations which it has not set up itself.

Open University (Milton Keynes, England)

The UK Open University has also been involved in on-site training programmes, both within and outside the Commonwealth.

National Council for Education Research and Technology (New Delhi, India)

NCERT has organised a series of training seminars over the last ten years for the staff of various distance education institutions in India, on such subjects as writing, management and organisation, tutor-marking, personal contact programmes, and setting-up study centres, often with Unesco experts in attendance.

University Sains Malaysia (Penang, Malaysia)

Two British consultants assisted, from 1978, in the development of a staff training programme which included training for the off-campus programme. The programme was planned in a series of one-day workshops for academic staff and the consultants recommended the University to set-up a small unit to assist in training of academic staff. Staff of this unit were to be given a one-year full-time postgraduate course, comprising the Dundee College of Education Postgraduate Diploma in Educational Technology, plus a special project at the University of Surrey. The first two staff members appointed to the unit did this course in 1979-80. For other academics they prepared a distance-learning course equivalent to three months full-time, using correspondence materials, tutorial assistance from the University Educational Technology Unit, and a 3-4 week on-campus period.

The consultants considered that after the staff on the Dundee course had returned and the Unit had been started, the University would be able to run its own training programme, without outside assistance, except for training further unit staff and senior colleagues selected for liaison with the unit. They also felt that this programme could serve as a model for other institutions.

Later developments in staff training for USM's Off-Campus Programme are described in section 2(c) below.

(L. Elton & G. Manwaring, 'Training and Education of Teachers in Higher Education in Developing Countries', Higher Education 10, 1981.)

Distance Education Branch (Sri Lanka)

The Branch is responsible for distance education for in-service teachers at all levels. Its staff have been trained in a series of seven workshops between 1982 and 1985, organised by consultants from the Department of Education, University of Lund, Sweden. Most of these workshops have been held in Sri Lanka, using a combination of lectures, discussions and individual work. They have covered:

- theory of distance education

- guidance and counselling

- tutoring

- assignments for submission

- production and media

- administration

- research and evaluation

The participants have included course writers, production staff, tutors, correspondence teachers and administrative staff. The training has been based on four handbooks:

- for course writers

- on production and administration

- for tutors

- for correspondence teachers.

The latter two are designed as correspondence courses, to be used by the first people trained in order to train others.

There have been additional writing workshops in between the training workshops attended by the Swedish consultants.

The consultants see a continuing need for staff training to be organised by them, particularly in organisation skills and evaluation, and for further training in Sweden to deepen the organisation's knowledge of distance education.

(Unesco Regional Office, Bulletin no. 26, December 1985

R. and A.W. Flinck, Developing Distance Education in Sri Lanka, and various earlier reports, University of Lund, 1985).

(b) Regional Workshops

International Co-operative Alliance (Geneva, Switzerland)

ICA has sponsored and organised training workshops in East and Central Africa on the development and use of correspondence instruction in cooperative education.

Asian Mass Communication Research and Information Centre (AMIC) (Singapore)

Open Learning Institute (Canada)

International Extension College (England)

These three organisations are collaborating on proposals for training in media production for distance education in Asia.

A one-week seminar will take place in Singapore in June 1987, for senior staff of distance education projects in Asia. OLI and IEC distance educators will present training possibilities and the seminar participants will draw up a programme of regional training courses over the next few years.

Writers' Workshop Series, College of Adult and Distance Education, University of Nairobi, and German Foundation for International Development (DSE) (Kenya)

This series of workshops has been run twice so far, in 1985 and 1986. The programme has three stages:

1. a 2-week workshop to familiarise writers with skills needed to design a specific distance education course, to help them plan, develop and write at least one unit and be ready to field test it;
2. over the next 4 months participants field test their units and rewrite them in preparation for:
3. a 2-week editorial workshop, where writers work with editors on finalising their materials.

In 1986 the 21 participants represented eight organisations in three countries (Kenya, Uganda and Tanzania). They are funded by DSE.

(c) Training Attachments

Institutions in Commonwealth countries which have offered training attachments to staff of distance education institutions from developing countries include the UK Open University, Deakin and Murdoch Universities in Australia, and the Open Learning Institute, Canada.

A detailed account of one such programme, under which course writers from the University Sains Malaysia were attached to Murdoch, Deakin or OLI, will be found in the regional paper on Asia prepared for this study (Distance Education in Commonwealth Asia, Regional Paper 2, compiled by Janet Jenkins). A total of 68 writers have participated, with Murdoch taking 16 maths and physics writers, Deakin taking 36 writers in social sciences and arts, and OLI taking 16 chemistry and biology writers and course developers.

Some of these individual attachments have been markedly more successful than others, when measured in terms of the quantity and quality of course materials produced. USM's varied experience has several lessons to offer institutions contemplating similar programmes (see Asia paper).

3. ~~Face-to-face~~ Courses

Distance Teaching in Developing Countries, International Extension College (England)

This is a 4-month course run every year at the University of London Institute of Education. It is for people working, or intending to work in distance education and it covers planning, administration, development of printed materials and radio programmes. Participants undertake an individual written project related to their work and agreed with their organisations beforehand.

The course's objectives are to enable every participant to:

- analyse an educational problem in his/her own country and determine whether distance-teaching methods are appropriate to it;
- make reasoned and informed choices between different methods of distance teaching;
- work out administrative arrangements for a distance-teaching system, including feedback and evaluation;
- write, edit or arrange the production of learning materials for a specified audience and set of objectives.

The tuition fee for the 1987 course is £3,400. This does not include accommodation costs.

Masters' Degrees in Education in Developing Countries, University of London Institute of Education, option on distance teaching taught by the International Extension College

This option is offered in three of the ULIE's Masters' programmes, all of which last twelve months. It is designed for people concerned with the planning, administration and production of distance teaching within ministries of education, higher education institutions and specialised distance-teaching organisations. It examines pedagogical

design, administrative considerations and evaluation and considers its use for non-formal as well as formal education.

The tuition fee for all three programmes is approximately £3,500.

Television Production in Education and Development, BBC Open University Production Centre (Milton Keynes, England)

This intensive three-month course has been held for the last five years. It aims to teach television production by developing the analytical, visual and management skills of participants to enable them to make relevant, informative programmes as part of multi-media education and development packages.

The course consists of lectures, exercises, seminars, programme evaluations and visits, but with the emphasis on practical work. Aimed at educators, television producers, directors and scriptwriters involved in programme making for education and development, it does not teach specialist technical skills but concentrates on production methods, direction skills and educational purposes.

In 1986 the course fee was £7,000, not including accommodation costs.

Distance Learning for Trainers, British Association for Commercial and Industrial Education

This 5-day non-residential workshop is run twice a year in London. It is designed for 'experienced trainers who are or will be engaged in the production of open or distance learning material'. It concentrates on printed text and participants have the opportunity to plan, develop and pilot test a unit of distance learning material.

Fee £690.

Distance Learner Support Workshop, British Association for Commercial and Industrial Education

This is a similarly organised workshop for trainers responsible for the selection, implementation and management of open and distance learning programmes. It aims to enable participants to identify the kind of support a distance learner needs and the skills necessary to give this support. They will design an appropriate support programme for an existing package offered by their own organisation.

Fee £660.

4. Self-study Courses

(a) Courses Already Offered

Of the 306 responses to questionnaires sent out for this enquiry, nearly 50 indicated that the institution concerned had produced training manuals for their staff. The majority of these are for course writers or for tutors, and it seems safe to assume that they

are designed for self-study. In addition, we know of the following courses which are currently available to distance educators generally.

Graduate Diploma in Distance Education, South Australian College of Advanced Education

This is a distance education course for practitioners of distance education. The first students were enrolled in 1983 and by 1985 included some from other South Pacific countries as well as Australia.

The diploma is equivalent to a one-year full-time course, but is available only over three years to part-time students. There are seven units, but we do not know how many assignments have to be submitted for assessment. At the end of the course students undertake a project equivalent to a double unit.

For copyright reasons the South Australian College has been unwilling to provide us with samples of the course materials. But we know from published articles about it that it is primarily print-based, using audio cassettes, colour slides and video cassettes as supplementary materials where appropriate. The course was developed by a course team whose membership changed over time and between units.

We do not know what the fee for the course is or what the enrolment criteria are for overseas students.

Diploma in Correspondence Education, Association of European Correspondence Schools

This course aims to enable correspondence educators to increase their knowledge and enhance their professional status. There are seven modules available:

- essentials of distance learning

- course for administrators

- course for counsellors

- course for editors

- course on marketing

- course for tutors

- course for writers, Parts I and II

The fee for each module is US\$50, and there are no formal entry qualifications. 30-60 hours of study are required for each module and they may be studied in any order. Each has between two and six assignments to be submitted to a tutor for grading. After completing the assignments in three modules (which must include Essentials of Distance Education), students may apply for the Certificate in Correspondence Education and are eligible to take a written

examination or write a dissertation for the Diploma.

Tuition is normally in English but it is sometimes possible to arrange to write in another language.

Essentials of Distance Education, Borje Holmberg, Fernuniversitat (ZIFF), (West Germany)

This is a printed distance-study course designed "to be useful both to people who study education in a scholarly way and to practitioners in distance study and adult education generally". The author has also described it as a curriculum largely of post-graduate character. There is no indication of the time the student should expect to devote to the course, in terms either of study hours or months. There are five units, with an assignment for submission at the end of each.

We have no information of the cost to the student of enrolling on this course, which is available in both English and German versions.

Tutor Orientation and Training Package, Open Learning Institute (British Columbia, Canada).

This package of five manuals and eight audio cassettes has been designed to guide instructors who provide tuition for students enrolled in distance education programmes. The manuals, entitled Tutor Administration Manual, Tutor Orientation Manual, Tutoring by Telephone, Audio Teleconferencing for Distance Education Tutors, and Assessing Student Assignments, are presented in a 3-ring binder with a cassette holder in which the eight audio tapes are mounted. The manuals incorporate practice exercises and their answer keys.

The cost of the package is not known.

Training Manuals for Distance Education, International Extension College

This is a series of manuals aimed at those who have limited resources at their disposal:

Writing for Distance Education	£10
Practical Research in Distance Teaching: A handbook for developing countries	£18
The Administration of Distance Teaching Institutions	£18
Course Development: a manual for editors of distance teaching materials (published jointly with the Commonwealth Secretariat)	£10

Writing for Distance Education includes exercises, intext questions and checking activities. The administration and course development manuals can be used for self-study, by people working in groups or

training workshops or as a correspondence course with IEC tuition. So far there have been very few correspondence students for these manuals.

Open Learning Guides, Council for Educational Technology (London, England)

Open Learning in Action	£12
How to Help Learners Assess their Progress	£7
How to Tutor and Support Learners	£7
What is Open Learning?	£9
How to Develop and Manage an Open Learning Scheme	£7
How to Communicate with the Learner	£8
How to Manage the Production Process	£9
How to Find and Adapt Materials and Select Media	£8

Training Courses in Open Learning, Scottish Training and Support Unit (Dundee, Scotland)

SCOTTSU has produced a number of open learning packages to support Open Tech projects. These are as follows:

- Learning about Open Learning
- Writing Open Learning Material
- Tutoring Open Learning Schemes
- Delivery of Open Learning Material
- Evaluating Open Learning Schemes
- Adapting Material for Open Learning

Tutor support is available for all except the first. The cost varies from £20 (£50 including tutoring) for tutoring or evaluation, to £25 (£90 including tutoring) for writing. The courses are designed for distance study, but we do not know how many hours of study they are expected to take. Some parts are more appropriate than others for use outside the Open Tech framework.

Diploma in Educational Technology, Dundee College of Education

Dundee College offers a range of related courses, all at a distance, of which the Diploma is the longest (maximum time four years). It includes elements which can be studied separately for a certificate in the design of courses and a certificate in the design of materials.

The annual fee for overseas students is £1250. It is possible to complete the college diploma with no attendance requirement, but a minimum of eight days' attendance is needed for the award of a Council for National Academic Awards diploma.

This is a postgraduate course in curriculum development which happens to be taught at a distance, not a course designed for distance educators. Although it uses 'the educational technology approach' and deals with distance learning, along with other methods, under 'course design and teaching methods' (itself one of eight study packages), it makes no claim to be appropriate for the training of distance educators.

Practice of Higher Education, Institute of Educational Development, University of Surrey (England)

This is a Diploma/MSc course for teachers in higher education which is taught at a distance, not a course designed for distance educators. It consists of four compulsory modules and eight optional ones. Participants must pass in five modules and an individual project for the award of the Diploma. They must pass two further modules and a research dissertation for the MSc. One of the optional modules is Distance Learning (a module can require up to 120 hours of work).

Normal completion of the Diploma is expected to take two years and a further 18 months to 2 years is needed for the MSc. The fees are £650 for the Diploma and an additional £360 for the MSc.

(b) Courses in the Process of Development

Australian and South Pacific External Studies Association

ASPESA is preparing a staff development package (no details available).

(ASPESA News, 12.:2, August 1986)

Indira Gandhi National Open University (New Delhi, India)

IGNOU plans to offer a Diploma in distance education from January 1987, designed primarily for tutors. This is to be followed by a Masters' degree, from 1988, aimed more at full-time professionals in distance education, and including training in such areas as course development and writing.

Diploma in Education, Massey University (New Zealand)

From 1988 Massey University will offer distance education for people working in distance education, as part of a postgraduate diploma. There will be courses in phenomenology and course design, but no more details are available at present.

Diploma Course in Distance Education, Deakin University (Victoria, Australia)

We understand that Deakin University's Distance Education Unit offers such a course, but we have no more information about it.

External Diploma in Distance Education, International Extension College and University of London Institute of Education (England)

This proposed course has so far only been approved in principle by the Committee for External Degrees of the University of London.

Its aims would be:

- to enable students to obtain a broad knowledge of distance education practice at various educational levels, and of the media combinations and administrative and organisational patterns commonly used;
- to provide students with an understanding of the advantages and disadvantages of various distance education approaches and enable them to determine the appropriateness of such approaches to particular educational purposes;
- to equip students with essential skills in course materials development for distance education and in the administration of distance teaching institutions.

The programme would be aimed, in the first instance, at students who had successfully completed the IEC/ULIE short course in distance teaching. It might, at a later stage, be open to students whose experience and/or alternative training in distance education could be deemed to exempt them from the need to attend such a course. Its target audience would therefore be senior administrative or professional staff of distance teaching institutions or experienced educationists who are destined to become distance educators.

The Diploma Course would have four elements:

1. The development of distance education and its present status (policy and practice).
2. The general principles of distance education: the learning system, the administrative system and the assessment system.
3. Adult learning and educational communication.

4. Educational development: policy and innovation.

The possibility of extending this programme to Masters' level courses is also under discussion.

5. Recommendations

The information presented in this paper shows that a wide range of methods are currently used to train distance educators. To some extent, at least, a choice is available to institutions and individuals seeking training.

Judging by the number of programmes reported in the previous section on self-study courses under development, distance educators are particularly interested in developing and using distance materials for training. We would therefore recommend that support be given to the development of such training materials. A useful first step would be to organise an examination of those which are already available, including as many as possible of those produced by distance education institutions for their own internal use. From such a study a list could be compiled of recommended materials, and it might even be possible to group some of them together into a complete course.

We would also suggest that more staff training could usefully be undertaken on a regional basis by groups of institutions in Commonwealth countries. Specific short courses could be organised on some of the following topics:

writing	counselling
audio production	editing
video production	print production
tutor training	research and evaluation
administration	new technology

The importance of training key staff members to train others in their turn should be borne in mind when planning either distance or face-to-face training activities.

Exchanges of staff between organisations are valuable. So far, these have mostly been organised between developed and developing countries. We would recommend the introduction of more exchanges between institutions within the same region. Relatively short visits of this kind would be less expensive and would be likely to contribute more to the training of intermediate level staff.

One of these recommendations calls for more than a relatively small boost to get new initiatives started. In particular, the establishment of regional training links and programmes is a much more feasible objective than the implementation of a centrally designed Commonwealth distance education training programme.

PAPER 14

TRAINING FOR ACCOUNTANCY

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CHAPTER FOURTEEN

1.0 Introduction

This paper considers accountancy and finance as subject to be learnt through the medium of Distance Learning, especially in the context of collaboration and co-operation in the Commonwealth. The technical problems of using the same material in different countries are also examined. In this context the paper examines the extent to which the subject matter is universal and the degree to which it is variable because of differences in the law or other regulations in the different countries. The existing provision of programmes in the subject area, in so far as it is revealed by preliminary survey, is summarized and analysed and some gaps in the provision are identified. A number of case studies are included which describe, from various points of view and in a number of countries, experiences in collaboration over Distance Learning programmes in accountancy and finance.

As a basis for co-operation and collaboration in accountancy and finance we need a substantial body of material which is transferable as it stands or with minimal modification. We may approach the problem by examining the degree to which the subject is common to all countries in the commonwealth and to what extent subject matter is variable.

Accounting is in effect a universal "language", as the basic concepts and techniques are used in all countries. There are, however, a number of "dialects" due to differing practices which exist largely because of differing regulations in different countries. But the differences between Commonwealth countries' corporate legislation are not very great, on the whole. Also, all countries either adopt the International Accounting Standards or produce National Standards which are harmonized with the International Standards. The experience described below of having authors in the UK writing materials for the South Pacific indicated that the problem of difference was quite easily overcome.

Further, there is a trend towards more universality in accounting through the further development of International Standards and by the growth, through expansion, acquisition and merger, of international groups of companies.

The concepts and techniques of managerial accounting and finance are, if anything, more universal than accounting practices as they are very little affected by differing regulation and practice except with regard to the financing of businesses.

2.0 A Survey of Accountancy Courses

In order to determine the nature and extent of provision of accountancy courses taught by distance learning methods in Commonwealth institutions, a two stage survey was carried out. Firstly, the findings of the main survey carried out for the central report on Commonwealth Co-operation in Open and Distance Learning were analysed to identify those institutions that indicated they offered courses in the area of business studies. Of the 306 institutions in this data base 120 were identified as being in this category. Secondly, we wrote to 102 of these institutions, requesting information about their current programmes in accounting, focussing on:

- a) the nature of the content of the courses/programmes taught;
- b) the nature of the media and pedagogical methods used;
- c) the nature of the assessment procedures employed;
- d) the nature of any past, present or future collaborative linkages the institutions may have been involved in, and their views on collaboration and co-operation generally.

We received 29 replies, only two replies from institutions outside Australia, Canada and the United Kingdom; both of these were from institutions in Hong Kong. A summary of our findings follows:

Courses Available

Post Graduate Programmes - Master of Business Administration (MBA)

A number of institutions in the Commonwealth offer courses leading to the post graduate qualification, Master of Business Administration. All of these courses contain elements of accounting and finance. In recent years, these institutions have developed or are currently developing a distance learning approach to presenting this qualification. The courses are usually developed on a modular basis. Our survey has identified four such university institutions; programme launch dates are also given:

- Deakin University, Australia, 1981
- University of Strathclyde, Scotland, 1983
- University of Warwick, England, 1986
- Heriot Watt University, Scotland, 1987

Deakin University

Deakin University was the first university in the world to offer an MBA course entirely in the external mode, through its School of Management. Descriptions of this programme occur in Maxwell (1986) and Northcott et al (1985). The annual intake is restricted to 60 students drawn from Australian applicants. The courses are intellectually demanding, and are consequently aimed at extremely able

students. Hence, the course has very restricted availability.

University of Strathclyde

This is a four/five year programme offered by the Strathclyde Business School which was introduced in 1983-84 and has around 250 students enrolled at present. It is currently open only to students resident in the British Isles. The foundation class options include accountancy and finance as a compulsory component and distance learning modules are available in Security Analysis and Portfolio Management from the range of electives. It is planned to prepare distance learning modules in International Finance and Financial Reporting which are currently only available to full-time and part-time students (a more detailed study of the Strathclyde programmes appears later in the paper, see Section 3).

University of Warwick

This course is offered by the University of Warwick School of Industrial and Business Studies. More than 300 students were registered for the first intake in 1986. It is the only MBA available throughout the Commonwealth in the external mode. The accountancy and finance courses occur in the first and second years. Year one includes a compulsory accountancy and finance course; this course enables students to understand modern financial reporting; and year two includes a compulsory financial management course which is aimed at promoting an understanding of financial accounting in the context of managerial decision making. Those students who discontinue the course after completing one year successfully can be awarded a Certificate of Business Administration, while those who complete two years are eligible for the Postgraduate Diploma in Business Administration. These courses are currently being offered at centres in Malaysia, Singapore and Hong Kong. This programme is of particular importance to this paper because it is an example of a collaborative venture involving a British university and a private commercial correspondence college (Wolsey Hall). The University is responsible for the development of the programme and its assessment and the correspondence college is responsible for its administration.

Heriot Watt University

This course is currently under development. It is intended to be a high quality MBA aimed at people in business who have recently been promoted into management and lack any previous training in this area. The response from UK companies has so far been poor and it is expected that many students will not be interested in the degree but will wish to study selected courses only, depending on their specific needs. The demand from people outside the UK appears to be better, particularly in Europe, Scandinavia and South America. To date, the finance and quantitative methods courses are complete and three other courses are in their first final draft form; the accounting section is currently under review. These materials are being trialled in selected companies in the UK.

One other British university institution, the University of Aston, currently offers two of its MBA modules in the distance mode, which involve accountancy and finance. These modules are (i) Financial Accounting and Finance, a package which includes 22 hours of video instruction, group discussion and print led private study materials and (ii) Basic Elements of Financial Management, a course consisting of 20 hours of video recordings, plus group discussion and print led private study. Both courses are available through the University Centre for Extension Education and have been prepared in collaboration with its Tutored Video Instruction (TVI) Unit.

In addition to these courses a number of other institutions are planning to launch MBA programmes in the near future; for example, Laurentian University in Ontario, Canada; the Open University's Open Business School and Henley Distance Learning Limited in the UK.

Post Graduate Studies - Non MBA

A number of institutions in the Commonwealth offer post graduate courses in accountancy, for example, the Western Australian Institute of Technology has a Graduate Diploma in Business. Henley Distance Learning Limited, a UK based private commercial correspondence college launched its 'Accounting for Managers' course in 1983. This course largely caters for the UK market, but is available internationally. The course is aimed at recently promoted young and inexperienced managers and skilled technologists who have been promoted into this area. Strathclyde University Business School, in addition to its MBA programme, also offers its Flexible Management Development Programme (FMBP), which was launched in 1984. Essentially the programme offers one course that is specific to the accountancy/finance area, namely the Finance in Perspective series. This series focuses on the presentation and assessment of business plans and is designed to offer a basic understanding of business plan assessment and interpretation for those who do not want to embark on an extended period of study or acquire professional qualifications, or do not work in an accounts/finance setting. Strathclyde also offers a post graduate diploma in Business Administration, a course drawn from the MBA foundation and elective units.

Massey University in New Zealand offers a post graduate/post experience Diploma in Business Studies. In Australia, the Tasmanian State Institute of Technology School of Business offers a graduate diploma in Professional Management. Mitchell College of Advanced Education in New South Wales hopes to introduce a Master of Business Degree in 1987. The Tasmanian State Institute also provides one unit externally, entitled 'Accounting for Non-Accountants' for students taking graduate diploma in Professional Management. There have been a number of important developments in Australia, involving professional associations. The Australian Society of Accountants offer a post graduate level Associate Programme through distance learning; this programme has been developed in collaboration with Deakin University. In Canada, the Canadian Credit Institute, a professional organisation, offers a four year post graduate diploma programme which is administered by the University of Toronto; the first year is

primarily devoted to accounting and there are a number of accounting options available in the latter stages.

There is a particular shortage of people who are qualified to teach in this area. The South Australian College of Advanced Education, External Studies Department, offers a graduate diploma in the Teaching of Accounting, through distance learning.

Graduate Level Courses

A whole range of degree level courses exist in Commonwealth institutions which are taught at a distance and involve varying quantities of study in accountancy and finance:

- University of London BSc External which includes an introductory course in accounting and finance;
- Open Learning Institute, Canada, Bachelor of Arts in Administrative Studies which includes three courses: Introduction to Financial Accounting, Introduction to Managerial Accounting and Finance;
- University of Lagos, Nigeria, Correspondence and Open Studies Unit (COSIT) BSc Accounting;
- Massey University, New Zealand, Bachelor of Business Studies and Bachelor of Agricultural Economics, a total of thirteen courses involving accountancy and finance are offered as compulsory or elective options for the above degrees;
- Dalhousie University, Canada, Centre for Advanced Management, School of Business Administration, Bachelor of Commerce Degree;
- Darling Downs Institute of Technology, Australia, Bachelor of Business with a Major in Accounting. (Here 50% of the Accounting students are studying in the external mode);
- South Australian College of Advanced Education, Bachelor of Business with a Major in Accountancy and a Major in Banking and Finance;
- Tasmanian State Institute of Technology, Australia, School of Business with a Bachelor of Business and a Major in Accounting. Students may also specialise in accounting with computing. (This institution offers a large number of courses in the accountancy and finance field);
- Gippsland Institute of Advanced Education, Australia, Bachelor of Business with a Major in Accounting;
- Mitchell College, Australia, Bachelor of Business with a Major in Accounting;

- Western Australia Institute of Technology, Bachelor of Business with Majors in Accounting and Financial Management;
- CJRTFM Open College, Ontario, degree level courses in accounting accredited by Ryerson Polytechnic;
- Open College, Hong Kong, University of East Asia Bachelor of Business Administration (BBA); these courses currently consist of units that were originally developed at Massey University, New Zealand, or the Open Learning Institute in British Columbia;
- Athabasca University/CGA of Canada Bachelor of Commerce.

Pre Degree Courses

These include the numerous certificate and diploma courses that are vocationally oriented and aimed at people who are generally working in the field but do not wish, or are unable, to undertake degree level studies. For example, the Open Learning Institute in Canada offers a number of pre-degree career, technical and vocational programmes which include two courses in accounting (Accounting I and II) and one in Financial Management. Numerous other institutions, mainly in Australia and Canada, also offer courses.

Basic Adult Education and Secondary School Level Courses

Our survey received three returns from Canadian Ministries/Departments of Education who supplement the conventional school level provision with distance mode courses. The Alberta Correspondence School and the Correspondence Education Branch of the British Columbia Ministry of Education currently both offer grade 11 and 12 courses in accounting to high school students and adults through distance learning. The courses are primarily aimed at local provincial residents, but are also available at increased cost to Canadians resident outside these provinces. Both these institutions use print exclusively for the delivery of these courses. The Ontario Ministry of Education Independent Learning Centre offers two grade 11 courses, two grade 12 courses, one course at grade 13 and one preliminary university course for those wishing to pursue the subject at university level. The centre is also currently developing a computer-based introductory level course in accounting which is expected to be completed in December 1987. In the UK, two Scottish institutions, Dumfries and Galloway College of Technology and Glenrothes and Buckhaven Technical college currently offer the Scottish Certificate 'O' grade in accounting by distance learning.

Courses Offered by Private Commercial Correspondence Institutions

The Private Commercial Correspondence Institutions have long been among the principal providers of distance learning courses in accounting and finance. Their provision tends to cut across the programme levels presented above although they mainly offer courses at the school and pre-degree level leading to recognised qualifications such as the UK General Certificate of Education (GCE) 'O' and 'A'

levels, the Royal Society of Arts (RSA) examinations, the London Chamber of Commerce and Industry (LCCI) examinations, or at the professional level, preparing students for entry into one of the numerous professional associations. For example, the Institute of Cost and Management Accountants or the Association of Accounting Technicians.

Gaps and Weaknesses

Our survey has revealed a number of gaps and weaknesses in terms of the provision in this subject area. To date we have knowledge of only one course in an African institution that offers training in accountancy through distance learning; this is the BSc (Accounting) degree available at the University of Lagos. This problem is not confined to the African continent but extends to the majority of the developing Commonwealth. The majority of the less developed Commonwealth countries have almost no provision in this area except that provided by the private institutions at commercial rates. Our surveys revealed little information about provision in the Indian sub-continent, although a large number of institutions are known to operate. One institution that does, however, offer a postgraduate diploma in Business Administration is Annamalai University in Tamil Nadu State.

Methods and Media

All the institutions in our survey, with the exception of the University of Aston (which produces video based courses), rely primarily on print. To a large extent the media and methods employed are determined by the local contextual conditions; this has given rise to a great variety of approaches. For example, the South West London College has, for over twenty years, operated its 'Directed Private Study' pattern. This is a three stage approach where students attend the college for one full day for each subject studied at the beginning of the course, then study for nine months by correspondence with telephone and face-to-face tutorial support and then attend the college for one full day's revision immediately prior to taking their examinations. Such combinations of conventional and distance learning methods are commonplace. Some courses require compulsory attendance, for example, the University of Warwick MBA which has an eight day face-to-face seminar at the beginning of each of the first three years.

The school level programmes, particularly those in Canada, rely almost exclusively on print, although the Alberta Correspondence School has recently experimented with teleconferencing with encouraging results and expects to expand this provision in the future. The subject is particularly well suited to the application of computer assisted learning and a number of institutions are currently engaged in the development of this media. The Ontario Ministry of Education Independent Learning Centre are developing a computer based introductory course in accounting. Most of the learning will be computer assisted using highly interactive courseware. Some of the assignments will be computer marked. Many of the university courses,

for example, those at Heriot Watt University, Massey University and Deakin University, incorporate sophisticated computer based training material and some are experimenting with the use of electronic mail and computer conferencing, eg, Deakin University. This University also places a heavy reliance on audio cassette technology.

Assessment

As might be expected, the majority of institutions offering accountancy courses use traditional methods of assessment. The terminal examination is still the most common and most important form of assessment, although some institutions are giving increasing weight to course work, for example, Dalhousie University Advanced Management Centre attributes 70% of the assessment to the lesson assignments and 30% to the final examination on their Certificate programmes. The more academic programmes, for example, the University of Strathclyde MBA, attributes 70% to the examination and 30% to assignments. The professional association courses are assessed entirely by examination.

Collaboration and Co-operation among Commonwealth Distance Teaching Institutions in Accountancy

In Australia, the Tasmanian State Institute of Technology has collaborated with the Royal Melbourne Institute of Technology on the development and authorship of auditing units which are currently being used by both institutions, the development and production costs being borne equally by both participants. In addition there has been a significant level of collaboration among many of the Australian TAFE colleges in all states in Australia, in the development of the curriculum and print materials for the new Associate Diploma in Accounting which will be offered this year. Deakin University has been very active in the field of collaboration in this area, both intranationally and internationally. Within the country the institution has collaborated with the Australian Society of Accountants (ASA) in the production of a graduate programme. It has also been involved with the ASA and the University of Queensland in the development of distance education courses leading to Certified Practising Accountant (CPA) and Public Practice Programme (PPP). At the international level Deakin has collaborated with the University of Strathclyde Business School on the development of their MBA and FMDP courses; of particular interest is their pioneering work in the use of electronic mail to facilitate this. In addition the University is also the agent in Australia for some of the UK Open University's Open Business courses.

In the UK, there have been a number of co-operative exchanges at the course level. The Council for Educational Technology and the Open Tech initiative has encouraged closer co-operation between private and public sector institutions. The Rapid Results College has recently made its courses available for widescale use in public institutions, South West London College being one institution that currently uses these materials to prepare its students for the Institute of Chartered Secretaries and Administrators professional examinations. In some areas these one-to-one linkages have been extended into significant

networks. For example, the North East Open Learning Network is a collaborative union of 16 Further and Higher Education Colleges which offer a number of courses in accountancy and finance at different levels which are drawn from other institutions. One of the most significant developments is the BA/BA(Hons) Business Studies Open Degree currently under development in a number of UK tertiary level institutions. This example, along with a number of others, is dealt with in the next section of this paper.

3.0 Some Case Studies

The subject of accountancy is at first sight particularly suitable for collaborative ventures in distance education. Despite differences in procedures between countries and differences in the structures of courses at universities or colleges, there is enough common ground to make feasible collaborative production and use of courses. A number of short case studies follow of collaborative ventures, which throw light on possibilities as well as problems. Brief accounts of two international ventures are followed by some accounts of inter-institutional collaboration within countries. These accounts were prepared for this study: a further case is reported in 'Professional Development Programmes for Accountants Through Distance Education: an Australian Study' by Paul Northcott and Dale Holt, in *Programmed Learning and Educational Technology* 23:1, pp 41-55. This article describes collaboration between Deakin University, Australia and the Australian Society of Accountants.

The University of the South Pacific: Course Writing in Accounting
(Material provided by Mick White, USP).

The University of the South Pacific offers full degree programmes at its main campus at Laucala Bay in Suva, Fiji in a range of disciplines, and in agriculture at Alafua in Western Samoa. Additionally it is possible for students to begin degree programmes through the University's Distance Education Faculty.

Up to 1983 the Accounting Department offered the following degree courses through the distance education mode:-

- AC 101 Accounting information: fundamentals
- AC 102 Accounting information: applications
- AC 201 Managerial accounting

These three units, together with course AC 202 Financial and Corporate Accounting, constitute the degree course element in the Diploma in Accounting Studies. There was therefore some pressure upon the Department, together with a desire within the Department, to prepare this course for distance education students so that this entire qualification could be completed by students who could not obtain access to campus studies.

While members of the faculty at the time had a general expertise in the area of financial and corporate accounting, no member of staff claimed to have a specific interest in the area of study. It therefore became necessary for the Department to identify a source or sources of external assistance in order to secure quality course materials for would be distance education students in this area of study.

At that time it proved possible to approach two agencies for funding, namely The British Council, and The Worshipful Company of Chartered Accountants in England and Wales. The conditions imposed by the sources of financing were such that it was necessary to identify course writers from within the United Kingdom. Through an existing link with the City of London Polytechnic, individuals with the appropriate expertise with a genuine interest in the work were therefore located.

The next task was to design the course. Far more was involved than simply stating the general area of study to be covered (financial and corporate accounting) and the level to which this work was to be pitched (second year degree). Course content had to be outlined in detail to allow for the environmental differences between the countries where the course was to be offered and the country where the course was to be written. (For example, lease financing is far more important in the South Pacific economies than public issues of equities. The reverse is true in the United Kingdom).

The relevant subject matter, once identified, was broken down into fifteen units of study, each of which was seen as being a manageable amount of material for a student to master over a period of one week. The specific objectives of each unit had to be drawn up by consultation between the USP staff member and course writers (producers). The nature of student assignments had to be agreed upon in like manner. Only when this work had been done did the producers feel that the task had been sufficiently well defined to enable them to proceed with the detailed work.

The team of course writers, four in all, broke down the work load between them, each writer taking prime responsibility for some of the units. Drafts of each unit were however passed to other team members for their constructive criticism.

Unit 1 was completed first and forwarded to Fiji where the USP lecturer concerned with the project and a course developer specifically concerned with the design of distance education course material, edited it. A copy of the edited material provided course writers with a guideline for the construction of the subsequent units which consequently simplified the task of editing by USP staff.

Producing courses 'at a distance' to be offered to students through distance education may have superficial appearance of intellectual elegance. In practice, the course writer must be able to establish a sound rapport with the purchasing institution, as well as the student as the ultimate consumer. Personal contact would seem to be the

painless means of achieving this, though it cannot be inferred from the limited set of experiences outlined here that this is essential to the success of a project of this nature.

Administrative difficulties resulted in an agreement by USP to accept the product in manuscript form from the Polytechnic. This created problems at USP. While the course materials reached USP from the writers by the agreed deadlines, far more work had to be done in compiling the materials in a form ready for student use by USP staff than was originally anticipated. Typists had to work from handwriting with which they were unfamiliar and which could not be described by the wildest stretch of the imagination as copperplate. It being impractical to refer material back to the authors, proof reading had to be undertaken by the editors. As typing errors were inevitably extensive and USP staff had to work against a tight schedule a larger than acceptable number of errors found their way into the final product, detracting from what is widely accepted by its users as otherwise being of high quality.

Notwithstanding the efforts made, it was necessary to delay the start of the course when first offered. As a result students were obliged to rush their studies, which inevitably had a detrimental effect on results achieved, less than 40% of the students completing the course passing. A high drop-out rate was also experienced.

All concerned with the course were therefore encouraged by the high completion rate, and a pass rate of 63%, also high in comparison with other accounting courses, obtained when the course was offered a second time. While it is impossible to draw any conclusions as to the quality of course materials from the two observations, it remains perfectly possible that the writers' and institution's view that the course material constitutes a quality product will be confirmed by future course results. The experience may also have some implications for the importance of self-pacing of studies, at least in the South Pacific island context.

Two lessons can therefore be learned from the operation of this project. Firstly, the need for close liaison between the producer and the buyer of the product where distance educational material is being bought in, or at a minimum the need to permit a user to freely adapt materials acquired to suit local needs.

Secondly, the need to resist pressures to develop distance education materials 'on the cheap' is apparent. Even when parties to an agreement of this nature are prepared to exercise goodwill and make sacrifices, it seems that quality will inevitably suffer.

The Open College, University of East Asia: Accounting and Finance
(Material provided by Professor D.F. Swift, The Open College).

Accounting courses have attracted the largest number of registrations at the foundation level of our BBA degree since the inception of the College (O.C.). The accounting study line has also been the most popular choice of specialism. There is no doubt, therefore that the

subject field is the most demanded of the most preferred degree amongst adults in Hong Kong. We get around 600 students per year onto our first course and it is usually one of the first two or three they register on. It, therefore, has an important role as initiator into independent learning which we did not plan for.

The courses began with catastrophic drop-out and failure rates and quickly became our most serious problem. However, we have raised the success-rate of the basic course from 23% to 50%, but that is still lower than in other business courses.

At the outset, however, it is well to distinguish between my dissatisfaction, on the one hand, based on pedagogical, educational and institutional vested interests and student satisfaction or docility on the other. All I have to say should be read in the context of little complaint or criticism from students. This is most marked in relation to accountancy. Here I see an unholy alliance between traditional Chinese respect for the teacher and the long and well-established tradition of punitive 'teaching' and examining in accountancy. Some of our students are simultaneously taking accountancy courses elsewhere or have taken them before and are thoroughly at home with traditional methods in the subject. Some positively prefer it. Most students simply suffer in silence, believing the adage that learning is good for you provided you don't enjoy it.

Our courses were originally taken from Massey University where they were offered both internally and externally in the traditional Australasian extra-mural way. I chose them because I knew that their courses gained maximum exemption with the New Zealand society and were largely transferrable as professional accountancy qualifications. However, they are not good distance teaching material. An effort had been made to make the part one courses audio-visual. We used exactly the same material but at each repetition of the course it became increasingly obvious that the untidy structuring of the courses were causing students unnecessary work. That is, too much effort was wasted by the students because its objectives were not adequately specified, appropriately articulated and sequenced. As a result, students dropped out of the course because of the sheer amount of work it entailed or prepared themselves badly for the final examination where they managed to complete the work.

The final weakness was unreliability in the assignments as a reflection of the course.

Compounding the undoubted weakness of the courses as distance teaching is our difficulty in attracting and keeping appropriate staff. As a break-even institution we are forced to employ mostly local junior staff who come to us with little experience of teaching, particularly at university level. Much more importantly, they carry with them a tradition of evening and personal tutoring of the poorest kind, and a belief that this is all that is necessary. There is a vast industry in Hong Kong of evening tutoring, particularly for professional qualifications, that is a model of bad educational practices. It is no exaggeration to say that one important reason for obtaining any kind

of professional qualification, by whatever methods, is that it gives an opportunity to 'moonlight' as a tutor usually reading pirated notes from any source. Young people come to us, then, expecting to be involved in something similar. Possibly the worst feature of the whole conspectus of unsavoury attitudes is the absence of any sense of responsibility for student performance. The student is to be told what is right and what is wrong, and is entirely responsible for subsequent performance. As you can imagine, developing a professional attitude towards distance teaching and learning is an uphill job. It is here, of course, that UKOU materials are so valuable because the full course is often as good at teaching tutors how to distance teach as it is at teaching students how to independently learn. Unfortunately, the one UKOU accountancy course cuts across our syllabuses.

This, then, was the context of our problem. Our solution is to substitute better courses beginning at the part 1 level. This will entail further problems due to variations in accounting practices in various countries, but bad as that is, it is a problem of lower priority. (Hong Kong business uses a mixture of UK, US and Canadian practices).

At present we have substituted two basic courses from the Open Learning Institute of British Columbia (OLI). We are then likely to add courses from Athabasca. They now have a range up to degree level which have exemption status with the Certified General Accountant's Association of Canada. The new courses are fairly well designed, but separately from the extra work for students produced by bad design, they are also probably 'lighter' than the Massey courses. consequently, we may have problems in preparedness for higher level courses for those who intend to follow the accounting study line. I hope they will be sufficient for the other BBA students who need do no further accounting.

All this may seem haphazard and, of course, it is. Its only justification is that it is very much better than doing nothing. Eventually, we will have a programme that brings appropriate amounts of success to students.

Collaboration in Canada between the Open Learning Institute and the Institute of Chartered Accounts of British Columbia
(Material provided by Ian Mugridge, Open Learning Institute).

In 1982, the Universities Council of British Columbia approved the offering by the Open Learning Institute of a Bachelor of Arts in Administrative Studies. This degree was designed to draw on courses in several disciplines, such as economics, commerce and psychology, to provide students who completed it with a broad acquaintance with matters related to the administration and operation of commercial and other organisations. Since the programme began to be developed, a number of additions to it have been discussed and some are beginning to be put into effect. One of the most frequently discussed options has been the addition of a series of accounting courses to the administrative studies programme.

Such discussions were initiated by the Institute of Chartered Accountants of B.C. which was faced with a problem of growing importance. The Institute has always required that articling students shall have completed a degree before entering upon their articles; and recently one of the results of this has been that, as students in B.C. found attendance at one of the provincial universities more difficult or expensive, fewer people opted to undertake the full training required by the Institute, choosing instead to work towards certification as a certified general accountant or a registered industrial accountant. Rather than reduce their entry requirements, the Chartered Accountants of the province began to examine options for allowing their potential students and students to take degrees without leaving the interior of the province. As part of this process, representatives of the Institute and its school of accountancy approached OLI.

After lengthy discussions, the Institute recognised the OLI administrative studies degree as an appropriate preparation for its articling students and, at the urging of the Institute, OLI agreed to expedite two processes on which it was already embarked - the completion of all courses in this degree and the articulation with it of community college business and commerce programmes. This second action would enable students from interior colleges to carry into their degree studies at OLI maximum credit from college programmes and thus to proceed as speedily as possible through the final years of their degrees.

The effects of these arrangements are already being felt in third and fourth year administrative studies enrolments at OLI and the Chartered Accountants are able to increase the availability of their training to appropriately qualified students in the interior of the province. One further collaborative activity is now being added along the lines implied earlier in this discussion. The addition of an accounting option to the OLI administrative studies degree will be a benefit both to accounting and to non-accounting students. With this in mind, talks are now in progress which will enable OLI to develop further accounting courses required for such an option particularly at the senior levels, using its own resources as well as those of the Institute's school of accountancy. Such an arrangement will enable both agencies to develop needed courses at lower cost to each and thus probably more quickly than each would have been able to do separately. It is also likely that, given the transferability of many accounting courses, these new courses will provide materials usable in other jurisdictions, both inside and outside Canada (see discussion of involvement with Open College, Hong Kong).

UK: The Development of a Degree in Business Studies by Open Learning
(Material provided by Derek Cherrington, City of Birmingham Polytechnic).

The impetus for a new degree by Open Learning grew from the interests of a working party of the National Standing Conference for Part-time Degrees in Business Studies in the United Kingdom. This Standing Conference represents over thirty Polytechnics and Colleges of Higher

Education in the UK, including the nineteen colleges which currently offer a part-time degree in Business Studies.

Their central aim in proposing the development of such a degree by open learning was to offer degree level business education to that part of the community which is currently unable to pursue attendance based courses. In order to make such an initiative cost effective, it was proposed to offer a substantially common scheme across a number of participating institutions, primarily those which were already offering a part-time degree in Business Studies. It was further proposed that staff from the participating institutions would share in the development and production of materials and plan and operate the scheme under the guidance and with the support of a centralised administration. Once the degree programme was operational it was intended that recruitment, teaching and assessment would be the responsibility of each institution.

A detailed proposal was drawn up and submitted by Birmingham Polytechnic, the proposed central administration for the project, to the Council for National Academic Awards (CNAA) for funding from its development fund. The proposal was accepted in May 1986 and a grant was awarded to Birmingham Polytechnic to coordinate the development of the degree.

Report on the development of the degree to date

The agreed structure of the degree is as follows:-

1. Foundation Units

- a) Economics I
- b) Commercial Law
- c) Computing
- d) Accounts I
- e) Quantitative Methods
- f) Behavioural Studies

2. Intermediate Units

- a) Economics II
- b) Accounts II
- c) Information Studies
- d) Organisation and Decision Making

3. Advanced Units

- a) Business Policy/Strategy
- b) Financial Management
- c) Marketing
- d) Human Resources Management

4. Honours Unit

A project with a full report

(All units are 120 hours long and students are expected to attempt three units of study per year).

At the time of writing most of the foundation units are in draft form and undergoing extensive piloting in at least two of the participating institutions. This piloting is conducted within existing part-time degree programmes and involves careful monitoring and evaluation of student and staff reactions to the materials. The authors of the materials and those involved in the pilot process meet frequently to discuss results and workshops on monitoring and evaluation are held nationally in order that the degree has consistency in format and style as well as academic rigour.

The originators of the degree proposal had assessed that it would be necessary to produce newly written materials for each unit. However, it has become clear that there are a variety of existing packages which can, with skilful editing, be adapted for open learning use. It is intended during the current year to see to what extent the bulk of Intermediate and Advanced units can be constructed from existing materials. This will avoid the necessity to reinvent the wheel and reduce considerably the time to a course delivery date. Also if this process of adaption and buying in proves to be academically sound and financially feasible it will also simplify the process of unit renewal and updating. Additionally, although not in the present proposal, it will enable us to consider the possibility of further units and a system of options.

If the production of Intermediate and Advanced units goes according to plan it is anticipated that the degree course will be available for the first intake in 1988.

As with any research and development proposal the programme can change in content and direction. This proposal has stayed generally on course but its originators are seeing a variety of ways of speeding up the programme and diversifying the curriculum.

Perhaps one area where the originators of this project had limited vision was in defining the market for such a degree course. Their market survey conducted by the Economist Intelligence Unit provided them with a useful indication of the size of the market and likely profiles and expectations of potential students but only within the UK. As the programme has developed it has become increasingly apparent that there is also a large market for such a degree course overseas, particularly within the Commonwealth.

The research team is currently examining ways in which the degree course could be delivered and sustained overseas. Preliminary findings suggest that there are commercial and academic agencies which currently offer "correspondence courses" or "distance learning programmes" around the world which already have their own organisation and delivery services based overseas. It would seem that perhaps

initially it would make sense to offer the degree course via one of these agencies, at least until a Commonwealth wide organisation exists to facilitate this kind of open learning.

4.0 Conclusions

We have found, in this preliminary survey, substantial provision in this field. However we have also found some apparent gaps in the provision. We suggest that the development of further high quality material is needed at first degree level. Also, it seems to be imperative that practical courses for owners and managers of businesses be produced to help in the development of African and other underprovided countries. The existing material provided, for instance, by the Open University Business School and Henley are aimed at a narrow target group of managers. Another area which appears to be worthy of attention is Computer Assisted Learning, now that there is a considerable advance in compatibility between computers and a substantial decrease in the cost of hardware. There are a number of initiatives in this field, including a promising collaborative venture between the Open Learning Institute of British Columbia and McGraw-Hill Ryerson. However, before going on to produce new materials, we suggest that further research should be undertaken into the available programmes in the Commonwealth, including evaluation of the appropriateness and quality of the materials. We believe that this should be undertaken as a matter of urgency so that efforts within the Commonwealth may be co-ordinated, avoiding waste of resources and helping to ensure that high quality materials are available to all the countries in the Commonwealth as soon as possible.

PAPER 15

DISTANCE TEACHING FOR AGRICULTURE

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1. THE POTENTIAL FOR DISTANCE TEACHING IN AGRICULTURE

1.1 Farmers and Continuing Education

Farmers would seem an obvious client group for distance education programmes. They are by far the largest occupational group in most Commonwealth countries; they are geographically dispersed; they have generally had less access to formal education than urban-based occupational groups; as they are self-employed it is usually impossible for them to attend residential training courses for more than a few days at a time; and they are increasingly faced with new challenges and opportunities which require knowledge and skills which they do not have. Many current trends in agricultural technology demand a considerable understanding of ecological processes and relationships before the need for them can be recognised or their potential realised on the farm. Numeracy and literacy skills are needed to make efficient and safe use of modern inputs. At the same time, agricultural extension agencies are looking for cost effective ways of bringing agricultural information and knowledge to farmers.

Open learning provision for farmers varies from formal courses for which farmers enrol, on completion of which they receive a certificate, to programmes which require no formal enrollment but still offer farmers opportunities to learn through distance teaching media. Providers of distance teaching include universities, government agricultural extension agencies and non-government organisations. Objectives vary also, from the provision of specific technical advice and information, to a broad education in the principles underlying agricultural practices. However, a specific objective of much of this continuing education provision in agriculture is to bring new technology to farmers. The intention is not to offer formal qualifications which farmers can use as a stepping stone away from active farming, but rather to enhance the efficiency and productivity of their farming.

If the ways in which distance teaching media are used for farmers' continuing education vary, so do the potential learners. In any area, there are farmers with different mixes of enterprise, different access to resources and varying priorities (as between subsistence and market production, for example, or between farming and non-farm sources of income). The content, level, treatment and media appropriate for some farmers will be entirely inappropriate for others. Institutions need therefore to base their provision on a good understanding of the circumstances and needs of different types of farmer. This calls for careful audience research and a readiness to adjust content and media to cater for particular educational needs. The Punjab Agricultural University in India recognised this after it launched its "Integrated Course in Agriculture" by correspondence in 1971, for farmers in Punjab States: it soon became apparent that the content did not really meet the circumstances of small scale and marginal farmers. A separate course was therefore started in 1976, focusing on small scale agricultural technology and on diversification.

Other Indian agricultural universities offer courses on specific enterprises, thus defining the potential learners by the crops they grow or the livestock they keep. Gujarat Agricultural University reported 5,000 sugar cane growers enrolled on a sugar cane course in 1984/85, and a further 2,000 farmers on a wheat production technology course.

The Punjab and Gujarat institutions are among six Indian universities offering formal continuing education courses by distance teaching for farmers. These courses use traditional correspondence methods, with specially prepared course units despatched to students, who complete and return written assignments for marking and comment. There is also usually provision for face to face contact with tutors and other students: in Punjab, for example, a "personal contact programme" is arranged at District level, when students have completed about half of the twelve lessons that usually make up a course, and then at the end of the course students have an opportunity to spend two days on the University campus.

Correspondence courses rely heavily on print media and therefore on literacy skills among their students, not only for presenting self study materials but also for the completion of student assignments. Farmers with low literacy skills are naturally at a disadvantage. INADES-formation (see below, 2.2) discourages non-literate farmers from enrolling on its courses, although some do manage to complete them by studying with groups of literate farmers. The Indian Agricultural Universities usually restrict enrollment to farmers who have completed a minimum period of formal schooling. As other educational technologies have become more widely available, farmers with little or no literacy skill have been brought within the scope of distance education provision.

In places where literacy levels are relatively high, printed media can be used for continuing education. When the Lesotho Distance Teaching Centre (LDTC) was preparing to establish its basic education programme for rural adults, it conducted an extensive survey of media access in rural communities. This showed poor reception for Radio Lesotho in many parts of the country (which is very mountainous) and a high proportion of rural adults who could read. Consequently printed material became the mainstay of the non-formal education work of LDTC - in particular, self study booklets on a range of practical topics from crochet to vegetable growing and the control of cattle diseases. Later research showed, however, that the booklets had not been as effective as had been hoped. This seemed to be because of the general difficulty of learning practical skills with no interaction with either trainer or other learners, rather than any difficulty in reading and understanding the material. LDTC therefore changed its distribution policy to one of encouraging use of the booklets by existing rural groups (women's groups, farmers' organisations, co-operatives, and so on) and then began to arrange training sessions for the leaders of these groups in how to make effective use of the materials in group study.

In most Commonwealth countries, however, literacy rates among farming populations are not particularly high. In these circumstances, radio often offers a realistic means of bringing distance education to the majority of farmers. Various approaches have been tried for combining the penetration and low cost of radio broadcasting with the structured approach to educational provision used in correspondence courses. This has often involved a group focus for radio listening, with broadcast material specially designed - and sequentially structured - for such groups, with some supporting print material and a feedback system. Three well tried models are the radio farm forum, the radio school (or "school on the air") and the radio learning group campaign.

Radio farm forums originated in Canada in the 1940s at a time when radios were not nearly as common (nor as cheap) as they are today. The basic idea was that groups of farmers would meet on a regular basis to listen to agricultural broadcasts, whose contents they would then discuss in relation

to situations in their own communities. The idea was to stimulate action to solve local community problems rather than to put across specific technical information about agriculture. As farms have got bigger, farmers better educated and radios more universal in Canada, the need for farm forums has vanished. The model has, however, been used in other Commonwealth countries.

A farm forum programme was begun in India in the 1950s on a local, experimental basis. At the end of the decade, a national project was launched, which reached its target of 15000 radio forums in 1966. Programmes are broadcast for the forum audience once or twice a week and are supplemented by visual aids and simple texts. Unlike the Canadian programme, the main purpose was to bring technical information to rural adults that could be applied in their homes and on their farms. Research in India in the 1970s showed that the agricultural knowledge of both literate and non-literate farmers in villages with farm forums was higher than that of farmers in villages without farm forums. The combination of regular access to agricultural information, group discussion, a structured sequence of content and feedback from farmers to broadcasters seems to have had a positive effect. Commonwealth countries in Africa with experience of farm forums include Malawi, Zambia and Ghana.

Farm forums have, however, declined in the Commonwealth in the past 15 years. A number of reasons have been suggested: the spread of individual radio ownership, a fall off in interest among group members after some months of regular meeting, the difficulty of maintaining regular production of good programmes with meager budgets, the lack of repair facilities for radios in rural areas and the expense of buying batteries. A recent initiative by the University of Ghana at Legon is reviving the model at a local level within the "Wonsuom" rural communication project, where listening clubs have been formed in 22 rural communities in the Central region. An important aspect of this project is that discussions within the clubs are recorded and material from these discussions used in subsequent broadcasts.

Radio schools offer a more structured learning opportunity than radio farm forums. They are widely used in Latin America for rural non-formal education, largely by non-government organisations. Listeners are encouraged to enrol on courses, which are then covered in a series of radio broadcasts. The amount of print material support varies, but radio remains the main medium. Group listening is a common feature of radio schools. Elements of the model have been used in Commonwealth countries. In India, for example, the Tamil Nadu Agricultural University runs a Radio Farm School on All India radio and has some 20,000 farmers registered for more than 30 courses.

Farm forums and radio schools reach relatively small numbers of farmers; and while they certainly attract farmers who would not enrol on correspondence courses, they probably leave out the less well educated, poorer members of the farming community. Radio learning group campaigns, on the other hand, specifically set out to encourage mass involvement. Such campaigns focus on a single topic, with carefully defined and restricted content; they run for a relatively short period of time (typically one to two months) during which large numbers of learning groups, led by volunteer leaders, meet to listen to and discuss a series of campaign radio broadcasts. The broadcasts and the supporting print material encourage discussion of the content in relation to local issues and are designed to promote action by group members to promote development activity in their community.

The undoubted success of the learning group campaign model in drawing large numbers of rural people into non-formal education programmes and in promoting learning and action rests on the careful preparation of materials and the long lead-in time for the recruitment and training of group leaders who then recruit their own group members. A common feature of these campaigns is a system for collecting, and responding to, feedback from the learning groups: group leaders complete a report form after each broadcast on which the group's reactions to discussion questions, and any questions they wish to put to the broadcasters, are sent in. One particular agricultural application of the model was the Botswana government's campaign in the late 1970s to explain, and canvass views on, a proposed major reform of land tenure relating to grazing land - "Lefatshe la Rona".

The main disadvantage of radio as an educational medium, even when used in group settings, is that the broadcast is ephemeral. For this reason, audio-cassette technology is proving itself as a distance learning medium in rural continuing education, as it already has in other settings. The cassette can be replayed as many times as the listener or the listening group wishes. The group has complete control over the timing of study sessions, which overcomes another major constraint of radio. The pacing of a series of programmes, and of each individual session, is also under the group's control: they can also replay the tape, or sections of it, as many times as they like. From the producers point of view, cassettes allow them to design material for specific groups within the farming population. This is an important consideration in continuing education for farmers because of variations within countries in climate, altitude, soils, crops and farming technology, all of which limit the feasibility of giving detailed practical recommendations in widely broadcast radio programmes. Cassettes also offer a means of obtaining feedback from learners and, because of the variation in group study times, allow more efficient field supervision of learning groups. Applications within the Commonwealth include the distribution of cassettes on various cash crops by Tamil Nadu Agricultural University to farmers and extension workers, the use of cassettes as a substitute for radio in a learning group project in western Botswana, and their use by agricultural input companies in Britain to keep their sales staff and technical representatives up to date with company news and product information.

More recent technologies offer other ways of overcoming the constraints of distance and literacy. Audio-conferencing, at present used in in-service training and higher education (see 2.3), becomes a real possibility as public telephone services, increasingly based on satellite technology, spread rapidly into rural areas. Several Commonwealth countries have plans to make public telephones widely available in rural communities before the end of the century. Audio-conferencing, where several participants at two or more locations have voice contact with one another, cuts down the need for travel and residential costs as well as reducing reliance on print and postal services, while allowing immediate feedback between students and remote tutor. Even without the added facility of audio-conferencing, rural public telephones allow farmers more ready access to advice from extension workers and the suppliers of agricultural services. There is certainly potential for the planned use of telephones as educational media, for example for maintaining tutorial contact. Facsimile transfer is yet another application of telecommunications technology which will have obvious attractions for distance teaching programmes as the costs come down.

Television made its debut as an educational medium for farmers on a grand

scale in 1975 when, under India's Satellite Instructional Television Experiment (SITE), 2,340 villages in six states were equipped with community television sets. Programmes were broadcast from two centres and transmitted via satellite direct to the receiving stations in each village. During the morning, broadcasts were for school students, to enhance and supplement classroom teaching. Continuing education programmes, including those on agriculture, were aired in the evenings. The Ministry of Agriculture, research institutions and the agricultural universities collaborated with All India Radio to use this facility for farmer education.

SITE ran for a year. It was undoubtedly a technical and logistical success but television proved rather an inflexible medium for agricultural education at the practical, farmer orientated end of the spectrum. The six states involved in the experiment were deliberately chosen to represent different climatic and agricultural regions. This inevitably limited the relevance of nationally broadcast material on agricultural practices and recommendations. The two production centres were in some cases thousands of miles from the reception areas: recording of material in the field that would look relevant to the farming audience was therefore impractical. In the follow up to SITE, which uses India's own INSAT series of satellites, the number of production centres has been increased substantially.

Television shares with radio the basic disadvantages of a broadcast medium: fixed viewing times, no user (or local tutor) control over pacing and sequencing, and the ephemeral nature of the broadcast signal. The rigidities of broadcast television have been tackled in some places by the use of video in farmer education. In two of Nigeria's Agricultural Development Projects (in Kano and Bauchi States), mobile video units have been a focal part of the process of educating farmers in improved agricultural knowledge and practices. Video programmes are produced on a fortnightly schedule, each based on a single topic relevant to the particular time of year, copied, and then shown both to extension workers and to farmers on a fleet of mobile units. It may be, however, that the future of video in farmer education lies in the placing of play-back machines and monitors in fixed locations (such as training centres, rural banks, co-operative stores). Now that the equipment (both for production and for playback) is becoming more robust, and with the availability of machines that will playback but not record (which are therefore less complex and so less likely to breakdown than the standard video cassette recorder) video may become more widely used. The bottleneck will be the expertise (and budgets) for producing good quality educational material.

In the short term, video probably has more potential in the more developed countries of the Commonwealth where there are more facilities for the production of video material and where there is now widespread ownership (or renting) of domestic video recorders. Farmers and their families can watch video cassettes in their own homes. The British Open University, recognising this situation, has used video in their recent venture into continuing education for farmers. This venture is of interest because the Open University (OU) had little previous experience in the field of agriculture. No agricultural courses have featured among its many degree level courses since it began operation in 1969. There has therefore been more than the usual degree of cooperation and collaboration with other institutions.

The OU's two initial items for farmers, produced in the early 1980s, related to two specific enterprises: dairy cattle and oilseed rape. They have both been designed to improve decision making by those responsible

for day to day management of those enterprises. The course on Health and Productivity in Dairy Cattle arose from collaboration between the OU, the Agricultural Training Board, and the Royal College of Veterinary Surgeons. The core text is supported by four broadcast television programmes, an audio cassette, three assignments to be completed and sent in for marking, and some other print material. Practising vets serve as local tutors to those who enrol on the course. The other offering, however, on Pest and Disease Management in Oilseed Rape, is seen as a self contained package which farmers or farm managers can work through entirely on their own and then keep as reference. In this package, a video cassette is included which explains the aspects of the topic that are conceptually difficult (such as crop sampling, pest life cycles and economic analysis of pest management practices). In addition to the video, the pack contains an audio cassette, three visual aid charts, and print material.

1.2 In-service Training of Advisory Staff

Another area of potential for distance learning is in the in-service training of technical and professional staff, both of publicly funded extension agencies and of commercial firms which provide services of various kinds to the farming sector. Most countries of the Commonwealth have large cadres of extension workers at field level, on whose efforts depend the success of agricultural development programmes. Their role includes the introduction of new technology, the conduct of demonstrations, giving advice on farm level or community wide agricultural problems and facilitating local development activities. Some countries have separate organisations dealing with livestock, forestry and arable agriculture; others have specialised agencies responsible for specific crops (particularly export crops); while others have an integrated extension service, with the field level worker acting as the channel by which farmers have access to specialist information and advice. At the same time, there are many agricultural banks, cooperative organisations, and firms or parastatal agencies responsible for the purchase of farm produce and the supply of agricultural inputs, all of which employ agricultural advisers who are in regular contact with farmers.

The staff of these agencies are widely dispersed, by the nature of their jobs. In many cases, they have received minimal pre-service training. Even when a firm technical foundation has been laid in full time pre-service training, to certificate, diploma or degree level, they still need to be kept up to date with changes in agricultural knowledge and technology. There are sometimes significant changes that take place within an agricultural industry that require large numbers of personnel to learn new skills or information quickly. (The introduction of metrication within the British forestry industry is a case in point: to meet the need, the Agricultural Training Board designed self-study print material for forestry workers.)

In the past fifteen years, major projects have been undertaken in many Commonwealth countries to reorganise and strengthen agricultural extension services. These have meant changes in role for extension workers and new patterns of work. And as pre-service training is strengthened, often as an integral part of such projects, the older serving extension workers find that their qualifications do not enable them to compete for promotion within the service on a par with the more recent recruits.

In the past, extension services have relied on word of mouth and occasional residential courses for in-service training of their field

staff. Verbal instruction is, however, relatively inefficient unless backed-up by print, self-study or reference materials; and residential training is expensive and consequently does not usually keep pace with training needs. Some agencies produce regular print material for extension workers, which feature developments in farming technology and broader developments within the field of agriculture. The monthly magazine, Agrinews, of the Department of Agricultural Field Services in Botswana is one example. Mobile video is used in Nigeria in the regular in-service training of extension workers. Audio-cassettes are distributed by British agro-chemical companies to keep their technical representatives and sales staff informed of new products.

Although these applications are not strictly distance education programmes, they do show the potential of media to allow agricultural staff to keep themselves informed of developments in their field. At present, however, formal in-service courses using distance teaching approaches seem rare. Much could be learned from experience in offering upgrading courses for serving teachers, who share many of the characteristics of field level extension workers. A recent example of an agricultural application comes from the Caribbean, where the University of the West Indies' audio-conferencing facility was used to hold two in-service courses for agricultural extension and other field workers in health, community development and related disciplines (see section 2.3).

1.3 Secondary, Further and Higher Education in Agriculture

The potential of distance teaching for offering equivalents to full time agricultural courses at school, college and university is limited by the difficulties of satisfying the practical component of the curriculum of such courses. At secondary level, the school farm has traditionally played an important part in the teaching of agricultural science, with agricultural science teachers, and often local extension workers, supervising practical work. There are thus few examples of distance teaching applied to the teaching of school level agriculture. Even if there were more provision, there would probably not be very much demand for this subject among the kinds of students who enrol for formal, school equivalent distance learning courses.

One institution which has offered distance teaching support for students following courses in agriculture at this level is the Lesotho Distance Teaching Centre (LDTC). From 1976, LDTC offered a correspondence course covering the Junior Certificate syllabus in Agricultural Science. In addition to the course texts and written exercises, which were assessed and returned through the postal service, face to face contact and some element of practical work was included by holding regular weekend courses. Local school teachers were recruited as part time tutors for these courses. A series of radio programmes was also broadcast. The radio programmes and the weekend courses became, over the years, more closely integrated with the phasing of the units of the correspondence course so that students could gain maximum benefit from them. As with other correspondence courses at Junior Certificate level, new students were brought together for an orientation course; this had been shown to increase the rate of successful completion of correspondence courses.

However, the popularity of the Agricultural Science course declined in the second half of the 1970s, at a time when other Junior Certificate courses offered by LDTC were showing increasing enrollments. Agricultural Science enrollments declined from 60 in 1976 to only 18 in 1979; and during that

time it had the fewest total enrollments of all Junior Certificate courses offered. In 1982, LDTC reported no correspondence course candidates for Agricultural Science. This is perhaps symptomatic of the low status accorded to agriculture in secondary schools by many students, who see secondary education as a way out of a future livelihood based on agriculture. Hence the greater popularity of mathematics, book-keeping and languages among correspondence students in Lesotho. On the other hand, the Agricultural Science students entered for the Junior Certificate exam achieved the highest pass rate for correspondence candidates.

If the question of practical work has limited the potential of distance teaching in school agriculture, it presents even greater difficulties in the case of formal Diploma and Certificate courses offered by post-secondary Colleges of Agriculture. In their residential, full-time mode, these courses generally require a high proportion of farm-based activity. Much of this will be on the College's own farm, while some Colleges also place students on other commercial farms for a period. In such courses, there is a constant interplay between theory and practice. This is the case whether the college is training potential farm workers and managers (as in England) or future agricultural extension workers, which is the primary role of agricultural colleges in most Commonwealth countries. The difficulty of achieving this degree of supervised practical work, and the disadvantage of not being able to show readily how principles learned in the classroom work themselves out in the day to day running of a farm enterprise, means that relatively few institutions offer distance teaching equivalents to their full-time residential courses in agriculture at this level.

Two institutions which have done so have approached the dilemma of practical work in different ways. In Canada, the University of Guelph's Independent Study Unit offers a range of courses designed for farm workers and home gardeners, including the Ontario Diploma in Agriculture. This is specifically designed as a distance learning alternative for those who are unable to enrol on an equivalent residential course at an agricultural college. The practical element is included by stipulating that the student has a minimum of twelve months practical experience in agriculture before enrolling; and then ensuring that the learning materials (which include audio cassettes, film strips and print media) and the course assignments encourage students to relate their own farming experience and activities to the content of the component courses (of which 15 must be completed within a five year period to fulfill the requirements of the Diploma).

Guelph's approach gives the university very little influence over the nature and extent of the practical experience of students. In New Zealand, Lincoln College in Canterbury keeps a tighter control over the practical component of their Diploma in Agriculture by combining distance teaching with a residential element. Students spend two years studying by traditional distance learning methods and then one year on the College campus. This approach obviously restricts enrollment to those who can commit themselves to a year's full time residential study, but it does address itself to the fundamental constraint that the learning of new practical skills normally requires not only practice but also immediate feedback to students on their performance.

2.0 APPLICATIONS OF DISTANCE TEACHING IN AGRICULTURE

2.1 Overview of Applications in the Commonwealth

The general picture emerging from the survey of open learning institutions in commonwealth countries is one of largely under-exploited potential. (An account of the complete survey is contained in Chapter 3 of the main report.)

Only 44, or 14% of the 306 institutions participating in the survey indicated that they offer courses in agriculture. The proportion of these institutions from countries which depend largely on agriculture is surprisingly small. Only Zimbabwe stands out as an exception here, and developing countries outside Africa are very poorly represented, as the following table shows:

Institutions offering agricultural courses by country:

More industrialised		African countries		Other countries	
England	9	Zimbabwe	5	India	3
Australia	8	Tanzania	2	Guyana	1
Canada	6	Kenya	1	Papua New Guinea	1
New Zealand	3	Lesotho	1	Fiji	1
		Nigeria	1		
		Ghana	1		
		Zambia	1		

Even within these institutions, agriculture tends to occupy a comparatively minor role. Apart from the seven institutions which specialise solely in agriculture, the majority offer agricultural as just one of a wide range of other subjects. The exceptions are:

Guelph University's Independent Study Unit, Canada
(which offers 57 courses in agriculture and horticulture)

Olds College, Canada
(which offers 9 agricultural and 35 science courses)

Central African Correspondence College, Zimbabwe
(which offers 30 agricultural courses plus smaller numbers of courses in other subjects)

More than half the institutions combine distance teaching with more conventional, face-to-face activities, and this, combined with the fact that agriculture is usually taught along with other subjects, makes it difficult to provide information from the survey results which relates specifically to the distance teaching of agriculture. However, a statistical comparison of those institutions offering agriculture with the total number of institutions in the survey, does highlight some interesting differences.

We find, for instance, that (at the 5% level of probability) a significantly higher proportion of the agricultural institutions offer economics and business studies, mathematics, and sciences. These are subjects which might be expected to have a close affiliation with agriculture.

The institutions offering agriculture in the survey group provide courses at a wide range of educational levels, from primary and further, to continuing and higher education. There is, however, a tendency to focus particularly on the following levels:

further education (post-secondary, but not degree)	57% of agric. insts.
community education	41%
continuing education	36%
secondary education	32%

Primary, degree and post-graduate levels are each offered by less than 25% of the institutions. On the whole, this follows the general trend for all institutions in the survey with the exception of community education which features significantly more often in the agricultural institutions.

The use of media by these institutions follows the overall pattern for all institutions in the survey. Text based learning is predominant, and is used in nearly all cases, and, while both TV and radio are surprisingly little used, audio and video media do play an important role. Study centres, residential schools, telephone teaching and computers are all used by over a third of the institutions.

There are two teaching methods indicated in the survey which institutions offering agricultural courses use significantly more than is common for the average institution. These are practical work (employed by 64% of agricultural institutions) and the use of regional services (43%). These two elements are of especial importance to agricultural teaching at a distance, and will be further discussed below.

With these exceptions, however, the results of the survey yield little evidence to suggest that agriculture is receiving the attention it deserves, both as a subject of special importance to the developing world, and as one for which distance teaching methods would seem to be particularly appropriate.

To give an idea of just how much potential there is to be exploited in this field, we now take a more detailed look at three institutions in the Commonwealth which demonstrate some important applications of distance teaching in agriculture (a) for small-scale farmers, (b) for in-service training and higher education, and (c) for international post-graduate education.

2.2 INADES-Formation: correspondence courses for farmers

INADES-Formation is a non-governmental organisation that currently runs correspondence courses in several African countries. The parent organisation, INADES, was founded in the Ivory Coast by a community of Jesuits with the general aim of fostering development in Africa. The training division, INADES-Formation, was established in the early 1960's. Its first correspondence course was launched in 1962, with extension workers the primary audience. In 1965, a course for farmers was launched, which has developed over the past twenty years into a series of courses offered in ten countries.

In 1969, the first national office outside the Ivory Coast was opened, in Cameroon. Since then, national offices have been opened in a further eight countries. Initially, these were francophone countries who took the French language course materials developed in Ivory Coast. In 1980, Kenya became the first Commonwealth country to join the INADES-Formation network, when a national office was established in Nairobi.

The correspondence courses offered by INADES-Formation in the various countries follow the same basic pattern. The courses for farmers are at three levels, with each level designed to be completed in one year and with farmers expected to commence with the first level and progress to the second. By this stage, they should have learned enough for them to make considerable improvements to their farming practice. The first level course, which deals with general agriculture and livestock husbandry, covers general principles of farming. The second level covers a large number of specific crop and livestock enterprises, from which the student makes a selection, plus a compulsory course unit on essential farm calculation. The third level goes on to cover management, marketing, credit and cooperative issues. In Cameroon, a fourth level course explores the themes of the third level in more depth.

In some countries, a further course is offered, on extension and the rural economy, which is intended for agricultural extension workers who are seeking to improve their communication skills and their understanding of development issues.

Basic course development and materials preparation is the responsibility of the international office in Abidjan, Ivory Coast. But national offices are closely involved in revision (course material is regularly updated and occasionally completely revised), in the testing of new material and in the development of course units to fit particular national needs. Translation is also done, where necessary, at national level. The Kenya office offers the farmers' courses in Kiswahili.

The teaching materials for each course comprise a series of booklets, each thought to require a month's study. When students have finished studying a booklet, they complete an assignment which is returned to the national (or, in some countries, a regional office) for assessment and comment. The assignments are structured in such a way that they test not only understanding of the material but also the students' ability to apply the principles to their own farming activities. On receipt by the national office, assessments are immediately marked and returned to the students, with detailed comments on any aspects of the material with which they have experienced difficulty. Students who have not done very well on an assignment, are advised to revise the booklet and attempt the assignment again. The first level course comprises ten booklets, all of which must be satisfactorily completed. In the second level, students study the compulsory unit on calculations and then choose a selection from units on a wide range of individual enterprises.

In 1986, the Kenyan staff of INADES-Formation, which included an agricultural staff of four, reported over 3,000 people enrolled on their farmers' courses. (The office also runs English language courses on development and on management, the latter designed for middle level managers of rural development projects. This has been developed in conjunction with another Kenyan agency, which indicates that the national offices of INADES-Formation are not restricted from forging their own local links). Although the primary audience for the farming courses is literate farmers, there is considerable interest among extension workers

in the courses and the course materials. Some of the students study on their own, others in groups. When students have completed three booklets on the particular course they are following, they are encouraged to attend one of the one or two day workshops regularly held in the field by INADES-Formation staff. These workshops give the staff valuable feedback on the course materials as well as providing an opportunity for practical demonstrations and for discussion of variations in farming practice and conditions.

The course offered by INADES-Formation in Kenya present a structured training for literate farmers who are interested in improving their farming. This improvement is based on a deepening understanding of the principles underlying the practice of agriculture. This is in contrast to the prevailing extension system in Kenya which, as in many other countries, provides farmers with blanket recommendation for improved farming practices without any long term educational strategy. The service offered by INADES-Formation is thus complementary to those provided by the government's agricultural extension agencies.

As well as the self study materials, INADES-Formation produces a regular newsletter and, in late 1986, was preparing to open its own audio-visual production unit in Nairobi.

2.3 UWIDITE: international cooperation in in-service training and higher-education

The three constituent campuses of the University of the West Indies are separated by a large expanse of ocean. They are in the three separate island countries of Trinidad, Barbados and Jamaica. The university also has a number of extra-mural centres in other countries of the region. Three of these centres are now linked with the three campuses through a permanent audio-conferencing network, which makes use of the national telephone systems and a communication satellite. Since 1983, this network has been used for a variety of educational purposes, under the University of West Indies Distance Teaching Experiment (UWIDITE), in addition to its use for university administration.

The audio-conferencing system enables groups of students and tutors at each of the locations to speak, and listen, to similar groups at the other sites. The facility also allows slow-scan video transmission via the same telephone link, which is used for the display of visual material during distance teaching sessions. Computer data transfer is also possible. Unlike most distance education media, the system allows immediate interaction.. The audio-conference room at each site can hold up to 20 people.

The main educational use of the system is in the university's undergraduate teaching: because there is some specialisation between the three campuses, students on one campus can gain access to staff expertise at the others without having to travel. The audio-conferencing facility is used both to teach courses entirely at a distance, and to enrich residential courses by allowing staff at distant campuses to contribute. In postgraduate courses, the system is used to maintain contact between students engaged in fieldwork on one island with supervisors and tutors on another. For example, most residential agricultural courses are held at the Trinidad campus: when students go back to their home islands to carry out field research, the system enables tutors to keep in regular contact with their students. This has led to improvements in the quality of

research and has saved time. Audio-conferencing also enables the students, when they have returned from their field research, to hold seminars with agricultural officers at the research site to discuss their findings.

The development of distance teaching courses has, as in other initiatives, prompted the careful preparation of new teaching materials, course texts and student assignments which are now in demand from students following residential courses. (This was noted also in respect of the INADES-Formation course materials, in section 2.2).

The inclusion of the extra-mural centres within the network has meant that system is also used within the continuing education activities of the university. These have included two courses for serving agricultural extension officers and others working in rural development programmes. A six week course in Integrated Pest Management used the system for one and a half hours per week, with two further two hour sessions for feedback and future planning, the slow scan video facility being used to assist students learn how to identify pests. Then an intensive two month course for community workers in agriculture, health and community development was held, which linked groups at the centres for eight hours each week.

Audio-conferencing made feasible by communication satellites, is being used to support agricultural education in other (non-Commonwealth) countries. In Peru, it is used for the in-service training of agricultural extension staff, as well as for staff meetings. In Indonesia, agricultural universities and teacher colleges have improved the quality of formal agricultural education by sharing expertise and teaching materials through an audio-conferencing system. The Indonesian system includes an experimental audio-conferencing facility in a rural community, powered by solar panels and providing, in addition, a public telephone service.

2.4 London University: international postgraduate education at a distance

A major initiative in international distance teaching at postgraduate level is being launched by Wye College, a constituent School of the University of London. The College has taught residential MSc and Diploma courses in agricultural disciplines for many years, which have proved very popular with students from overseas. At the same time, the University of London has long experience of offering external degrees. Until now, however, the University's external system has been primarily an examination system rather than a means of offering teaching; and enrolment on external postgraduate degrees has been limited to graduates of the University. The Wye College initiative removes these limitations.

From early 1988, Wye will offer an MSc and a Diploma in Agricultural Development. Entry requirements will be the same as for residential students pursuing similar courses - i.e. a good degree in a relevant discipline for the MSc, and a degree or higher technical qualification for the Diploma. Applicants who do not have the basic requirements will have the opportunity to sit a pre-registration examination.

The course is designed for professionals working in rural development programmes at a variety of levels, from area development projects to sectoral planning, and in a variety of specialities. The differing needs of students are allowed for in the MSc programme by the range of options from which students can choose, once they have successfully completed the

common core (which makes up half of the programme). These options include agricultural extension, quantitative economic analysis, livestock development and environmental impact analysis.

For many professionals in such positions, who are often in mid-career, with significant family responsibilities and holding key jobs from which they cannot easily be spared for the one or two years necessary to complete a full time Diploma or MSc course, an external degree offers the only realistic way for them of receiving such training. The course fees will be similar to those for residential students, but spread over up to five years, and without travel and residential costs, the external courses will cost about one third of the full time residential equivalents.

Students enrolled on the programme will receive core textbooks for each of the courses they follow (four for the Diploma, eight for the MSc). These texts are being specially commissioned for the new programme and are likely to appeal to a wide readership, in the same way that textbooks commissioned for Open University degree courses in Britain have established themselves as standard texts within their fields. For each course, students will also receive collections of readings, supplementary study material and a study guide which will include assignments. Students will be expected to complete three written assignments for each course: these will be sent to a tutor in Britain, not necessarily at Wye, who will provide detailed comments on them. It is not, however, intended to use these assignments in the formal course assessment: this will be by final examination only, to be taken in the student's own country, using the extensive network of examination centres built up over the years by the University of London for its external programme.

In the early stages, then, the study materials will be entirely print based. However, the possibility of using low cost microcomputers as a distance teaching technology is being considered. If it were possible to issue each participant with a microcomputer as part of the initial teaching package, assignments and exercises (especially for the economics, data analysis and management components) could be distributed on disc. As microcomputers will become increasingly important tools within agricultural development projects and programmes, and are already an important teaching tool and curriculum element in residential courses at this level, some means of introducing them into the external programme is probably essential if the programme is not to become regarded as a second rate option.

Another potential development within the programme offers an alternative way of introducing microcomputer technology to participants. The possibility is being explored of holding residential workshops for external students on a regional basis. These could include opportunities for hands on computer experience. Collaboration with overseas agricultural education institutions is also envisaged as a future development, with universities and colleges perhaps taking on some of the tutorial and administrative responsibilities of the programme for students in their area. They could also be useful sources of information and expertise on agricultural systems, projects and policies within a student's own area.

3. ISSUES

Four issues emerge from the above review and discussion which, taken together, represent a challenge to the effective exploitation of distance education opportunities in agriculture.

First, there is the question of providing group support and face to face contact with tutors. The evidence is clear: students learning at a distance learn more effectively and are more likely to complete their programme when they have opportunity to meet and discuss with other students and with tutors. This is particularly important with continuing education for farmers, whose isolation from other learners and lack of experience at studying makes it difficult for them to maintain motivation. Support of this kind can be provided by ensuring that participants study in groups (which has implications for recruitment onto courses), or by holding regular field days or weekend seminars at schools, colleges or research stations. In contrast to other subject areas, the infrastructure often exists for these activities in the form of agricultural training centres of one kind or another. These are commonly underused at present and would be suitable locations for seminars and practical instruction. Tutors from the distance teaching institution could run such seminars, or part time local tutors could be recruited for the purpose.

Second, there is the related challenge of catering for practical work in distance education programmes. Agriculture at secondary and undergraduate level, and in continuing education, is a highly practical subject. At postgraduate level, distance teaching programmes can be steered towards principles and the economic, policy, marketing and extension aspects of agriculture, and so the problem of providing for practical, on-farm work does not arise. At all other levels, however, students are expected to develop practical skills: furthermore, the principles learned in course texts are understood and remembered more effectively when their practical application is seen on the farm. If distance education courses in agriculture do not provide this, they will be seen as inferior to residential provision.

In continuing education, most students will be farmers. Careful design of course materials can help students see the implications of what they learn for their own farms. Course assignments can be built around the students' own farm activities, asking them to make and record observations which show the effect of certain factors on crop growth, for example. Radio programmes can feature farmers talking about their farms in a way which brings out the points covered in course texts. But in addition, agricultural training institutions can again play a valuable role in meeting this need. Trainers and extension workers based at such institutions are in an ideal position to supervise practical work and to run skill training sessions. Most institutions offering distance education in agriculture are not ministries of agriculture, which are normally responsible for rural training centres. If this resource is to be used more effectively within distance teaching provision, close collaboration will therefore be needed between agriculture ministries and distance teaching institutions.

Third, the inherent variability of agricultural systems and technology creates difficulties for curriculum design and the design of teaching material that is to be widely distributed. Again, the problem is more acute at the level of continuing education for farmers where education programmes aim to improve decision making on participants' own farms. INADES-Formation's approach to this is to concentrate on the learning of

general principles of agriculture in their first level course and then to allow students to select from a long list of crop enterprises those that are most relevant to their own area and circumstances. But even with a single crop, suitable varieties, expected yields, the incidence of particular pests and diseases, equipment available for land preparation and planting, and facilities for marketing will vary from area to area within a country. Distance education for farmers need to concentrate on those aspects of agricultural technology and practice which are applicable within the geographical area from which participants are to be drawn. They should perhaps also concentrate on developing an understanding of principles which can contribute to decision making in the particular situation faced by individual students. For example, while local extension services can recommend specific trees or grasses to plant on contour ridges between farm plots in order to reduce erosion, distance teaching programmes should rather explain the processes by which erosion occurs and the general principles involved in planting grass strips or rows of trees. This suggests scope for fruitful cooperation between distance teaching institutions and agricultural extension services.

The variability of agricultural systems leads on to the fourth issue: the particular requirements of agriculture in the preparation of distance education materials. Because of the essentially practical nature of the subject, it is necessary not only to have people with a thorough knowledge of their subject working on the materials, but also to have access to information about the agricultural systems in the areas from which students will be drawn and about the level of agricultural knowledge and technology of potential students. This calls for a greater degree of team work and more background research into the circumstances of potential students than in most subject areas. It might also seem to limit the scope for international collaboration in materials development. However it should be possible to combine subject matter expertise at international level with local knowledge of farming systems and populations.

Thorough testing of distance teaching materials is also particularly important in agricultural subjects, not only to check on the comprehensibility of print, visual and audio material but also to validate the relevance of the content in particular geographical areas. Here, too, local institutions can provide a valuable service to national or overseas distance teaching centres.

Turning more specifically to the scope for international collaboration, this would seem to lie in four areas: the provision of tutorial support and library, research and computer facilities for students enrolled on distance education programmes based in other countries (in return for a proportion of the student's course fees); the sharing of satellite facilities for telecommunications; development, testing and exchange of software; and training and exchange of experience in running distance education programmes in agriculture, particularly in the application of new information and communication technology. With respect to this last point, the opportunity for staff to study distance teaching programmes in other countries at first hand would be valuable.

Given the tremendous need for education at all levels in agriculture, and the existence of a more extensive infrastructure that could provide support for distance education programmes than in most subject areas (in the form of agricultural colleges, training centres and research institutions), it is perhaps surprising that there is so little distance teaching provision in the Commonwealth. As the examples described in section 2 show, the particular difficulties of teaching agriculture at a

distance can be overcome, both by programmes that use traditional distance education methods and by the application of more recent communication technology.

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PAPER 16

DISTANCE EDUCATION FOR HEALTH CARE

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INTRODUCTION

The role of distance education in improving health care is potentially substantial, for initial and continuing training of health professionals, and for communicating health messages to the general public. It has been used for both purposes and is a particularly important method of training for two reasons. First, it is desirable for health professionals to remain on the job while undergoing continuing in-service training, and distance learning makes this possible. Second, recent years have seen a shift in emphasis in health care, towards greater reliance on primary health care and less stress on curative medicine. This in turn has meant that health professionals at all levels need help to develop new roles, that a new cadre of community health workers, often paraprofessionals, has developed, and that individuals are, more than ever, called upon to take care of themselves and their families; media-based education is well suited to helping all of these groups. There has been considerable expansion in the use of distance education for health-related topics over the last ten years. This paper presents some examples, and suggests directions for future development, with particular emphasis on collaboration.

COMMONWEALTH ACTIVITIES

In the general survey we conducted of distance and open education in the Commonwealth, 48 out of 306 institutions included medical sciences or health-related subjects among their offerings. These subjects ranked among the lowest of all those on offer, although several courses are new ventures and the field is growing rapidly.

The majority of these courses are for professionals, usually to help them acquire higher qualifications. Examples include courses for opticians, radiographers, pharmacists, medical educators and nurses. These courses are mainly offered by institutions in Australia, Canada and Britain, and are often approved by the relevant professional bodies.

Only a small number of courses are for non-graduate health workers; the major example of this kind of training is provided by the African Medical Research and Education Foundation and is described below. Only a few programmes are currently available for the general public: a UK Open University community health course, a joint College of Health/National Extension College correspondence course on health, a course planned by the Tanzanian National Correspondence Institute, and a course just launched by the Namibian Extension Unit (described below). Even if the survey has not unearthed all the available courses, there are very few.

There are, of course, many radio and television programmes about health. We know little about the effects of these. The experience of the Tanzanian radio health campaign in 1973 and the Stanford (USA) heart disease campaign in the 1970s have shown how broadcast campaigns with group study and integrated face-to-face support can affect the health status of communities; in Tanzania, for example, 750 000 new latrines were built as a result of the campaign and four years later usage of latrines had increased by an amount which suggested the campaign was having long-term effects. In Stanford, groups particularly vulnerable to heart disease followed the advice given in the campaign to the extent that incidence of heart disease appeared to be reduced.

A final use of distance education is for alternative medicine. In view of the increasing popularity of alternative medicine in Britain, we conducted a small study of the use of distance education in training practitioners.

We will now look in more detail at examples of each of these areas of training and education.

PROFESSIONAL IN-SERVICE TRAINING

Amongst the distance courses available for nurses, some recent British initiatives show how distance methods can be used to improve the professional standing of practising nurses. The Distance Learning Centre for Continuing Nurse Education at the South Bank Polytechnic, London, is a recent initiative. One of its first staff described the beginning as follows:

‘It was in fact a very inauspicious gestation and birth; almost, it could be said, accidental except that the Department of Nursing & Community Health Studies “happened” to be here with its own established reputation and therefore it was reasonable that we should be invited to comment on the feasibility of using open learning facilities for nurses in higher education. So one blustery wet Thursday in March 1983 I found myself at a working lunch in Moorfoot, the Manpower Services Commission headquarters in Sheffield, to discuss possibilities and comment on proposals.

The request after the lunch for the presentation of some of the ideas I had expressed seemed so casual that it nearly got forgotten, until an urgent reminder suggested a speedy response was necessary as there was some money available for nursing. That first draft was produced after hasty and superficial discussions with colleagues in this Department who had well-established in-service education courses and a quick phone call to the English National Board where I was put in touch with Sheila Jackson who had just returned from Australia where they were using distance learning in nursing education.

Surprisingly, about six weeks later a visiting officer from the MSC appeared in my office. As the proposal was up for serious consideration, swift action became imperative as its potential became apparent!

A visit from the HMI gave us the opportunity to seek the approval of the Director of SBP, together with the possibility of a pump-priming allowance from the Academic Management Committee's initiatives fund and – we were in up to our necks!

Many nurses were plainly sceptical – it would never work in *nursing* education. The SBP had no formal guidelines so we worked in a 'vacuum'. Sheila Jackson's help was invaluable at this stage and she was able to give us the benefit of the Australian experience on the nursing element. After several months of talking, writing and tearing up and writing again, on one hot afternoon in early August I finally produced *the* proposal – actually written in my back garden! Hence the inauspicious beginning!

The next step

Later in the autumn of 1983 the proposal was approved – with some trepidation – within SBP and accepted by the MSC. . . The project was formally and publicly launched in March 1984 – just *one* year after those early tentative discussions. . .

The Steering Committee was set up and agreed with the MSC and is composed of representatives of a wide range of statutory, professional and educational bodies and institutions, as well as nurse teachers and service staff. It meets every two or three months, but small working parties have evolved on an ad hoc basis for specific developments. From the very start, this Steering Committee has given support and guidance to the project and has been an important feature in its progress. In addition, the MSC guidelines stressed the importance of drawing on the expertise of a well-established unit such as the Department of Nursing & Community Health Studies and a number of the nurse academics there have been involved from the start.'

(Source: Grace Owen, 'The DLC – In the Beginning', *DLC newsletter no 3* 1986.)

Three years later, the Centre is involved in several projects, all in their early stages but all promising well:

1. The Diploma in nursing¹

'The Diploma in Nursing of the University of London was first established in 1926. Until recently when a new curriculum was introduced, about 1500 nurses registered for it each year. Now there are only about 350 approved places, with the result that the demand cannot be met. In practice, many nurses have never had access to the course because they live and work too far away from the 32 approved centres throughout the UK, whilst others have found it impossible to attend because their duty times clash with classroom timetables.

It is to increase access to a well-established course that the Distance Learning Centre is offering the *Diploma in Nursing* of the University of London by distance learning. The course, which follows the University's curriculum, will be run in conjunction with local study centres which will provide the face-to-face tuition, counselling and library facilities that will complement the distance learning component of the course. Year 1 will commence in September 1987. . .

Each of the three years of study will require a minimum of 180 hours of formal study by distance learning (i.e. 90 hours per unit) but students will also be expected to read widely round the topics presented. It is estimated, therefore, that the average student would need to set aside about 8-10 hours a week for study.

In addition, 10% of the course (i.e. 10 hours per unit) will consist of face-to-face tuition at a local study centre. This will require four days attendance per academic year and will be arranged locally.

¹This and the following descriptions are abstracted from descriptive leaflets issued by South Bank Polytechnic.

Tuition will be provided through study centres in either:

- Schools of Nursing, which will be validated to run the course in conjunction with the Distance Learning Centre
- Colleges already teaching the conventional Diploma course jointly with Schools of Nursing. Distance learning will be an additional option for these colleges.

Face-to-face tuition will be arranged by the study centres, taking local conditions and needs into account. . .

Whilst centres will receive guidelines on tuition, there will be sufficient flexibility to allow for regional and individual needs. Group discussion will be an important component of the teaching to enable students to learn from each others' experiences.

A designated tutor will be available for counselling and advice and students will have access to library facilities. Centres will also be able to provide a clinical facilitator system. Great importance is attached to these facilitators who may establish a network of staff associated with a range of clinical areas and who are able and willing to provide guidance and supervision of students' clinical studies. . .

Study centres may be a *network* of resources rather than a single institution. For instance, Schools of Nursing in adjoining health districts may wish to pool resources, and library facilities might be available at several sites, including the local university or polytechnic.

Distance learning materials for individual study are being prepared by the Distance Learning Centre. Each unit will contain as a minimum:

- a **Reader**, which will contain material written by authors specially commissioned by the DLC, together with relevant journal reprints, book extracts and other documentation
- a **Work File** which will guide students through the readings and which will include activities, exercises, case studies and self-assessment questions to enable students to analyse and synthesise the materials studied.

Where appropriate, audiocassettes may be included. Any essential material which cannot be presented by distance learning, such as videotapes, will be available at local study centres. . .

It is assumed that all students will work in social and professional contexts where they are liable to be involved in dealing with problems arising from rapid social, professional and technological change. There is a need, therefore, for the course to develop nurses of independent judgment and flexible response to the problems they encounter. . .

The University of London provides institutions with a choice between course assessment and written examinations for Units 1-4. For the distance programme course assessment has been chosen, firstly because the preparation of course work requires students to demonstrate insights and understanding of the content as the course develops. Secondly, the extent and depth of work required to achieve the required standard is clear to students from the outset of their studies. Thirdly, students with difficulties can be identified early in the course and appropriate action taken to help them.

Three essays (or in the case of Unit 3, two essays and a detailed care plan) must be submitted for each of Units 1-4. Unit 5 has a three-hour written examination and two submitted papers must be prepared during study for Unit 6.'

A feature of this programme is that the course leads to an established degree, and is also developed in collaboration with recognised nursing bodies. For its tuition system, it looks to the rise of local study facilities, well established in Britain since the mid 1970s.

2. Managing Care: A programme for qualified nurses.

This was the first project of the DLC. It is a self-study pack, but students are encouraged to send completed workbooks to a tutor for assessment, and they may if they wish apply for a Certificate validated by the Polytechnic on completion of a suitable selection of packs. The course aims and structure are described below:

'Managing Care is a programme in continuing education designed for nurses who are working in practical situations with patients and clients but who have some responsibility for managing the context of patient care. It particularly aims to help recently-qualified nurses who don't yet feel fully competent to manage other staff and organise resources, and older nurses who have been in practice for some years and would like to 'brush up' their knowledge and skills. It has been designed for use by qualified nurses in all specialities.

The self-study pack format allows nurses to study at their own pace and at their own convenience. Each pack focusses on one subject only and contains all the materials needed for effective learning. The contents of each pack will vary according to the topic, but may include:

- Workbook, for self-directed study and project work
- Reader, including reprinted articles from the nursing press
- Case studies
- Audio-tape
- Game.

The programme as a whole contains *Introducing Distance Learning*, an optional pack which explores the distance learning approach, and 19 study packs. Five of these are core subjects and the remainder are divided into four options:

- Option A: Individualised Care
- Option B: Teaching
- Option C: Organisation
- Option D: Relating to Others.

Students may choose as many of these packs as they like, but in order to gain the Certificate, they must study the core subjects and one option. A fifth option, Option E, is a self-designed profile fitting the individual's specific needs which may be submitted to the Examination Board for approval.

Although each person works at an individual pace, each pack is expected to require an average of 15–20 hours of study time. Much of this time will be devoted to working through the activities that are a fundamental part of the programme and which build on the student's own experience of nursing. They are specifically designed to encourage her to analyse her own knowledge, attitudes, skills and approaches in depth and to relate them to the issues and ideas that are introduced in the study materials.

The workbooks are interactive learning materials. The student completes the book by working through the activities and examples. The workbook, containing her written answers, can then be sent to a designated tutor for assessment and the satisfactory candidate will then receive a Letter of Acknowledgement.

The Distance Learning Centre is applying for the *Managing Care* programme to be validated as a Certificate-level course by the Polytechnic of the South Bank.

To qualify for the Certificate, the student will successfully complete a designated profile of packs: the five core subjects and a choice of Options A, B, C or D – or Option E, if she wishes to design her own learning programme.'

The DLC is extending its range of courses rapidly. Another course on research awareness is under preparation. Another London-based scheme, 'Open Learning for Nurses', produces modules which concentrate on skills needed by practising nurses, such as measurement and using a calculator. Thus a core range of materials is rapidly being established. The packs have been developed with the assistance of practising nurses and their trainers. Their success will depend much on whether individual nurses or their employers are prepared to pay and give up the time to study over a lengthy period – three years for the Diploma.

A different approach has been adopted in New Zealand, where there is a National Health Sciences network. There a number of distance courses are offered, but tuition is provided from the central providing faculty. The students, however, meet in local study centres, and talk with the tutor through a teleconferencing facility. This facility is shared for all health sciences courses. Currently, the following are available:

Postgraduate Diploma in Clinical Dentistry
Master of Community Dentistry
Master of Pharmacy
Diploma in Occupational Health Practice

In addition, there are non-award continuing education courses for general practitioners, nurses and physiotherapists.

This system has been established by the University of Otago.

'A distance teaching mandate, based on a permanent teleconference network, was granted to the University by the University Grants Committee in 1984. This mandate comprises four areas of responsibility:

1. University courses for credit
2. Post-basic and continuing education for professional bodies
3. Continuing education for the community
4. Co-operative programme ventures with other tertiary institutions. . .

For particular sessions, up to four other locations can at present be added on a temporary basis by use of high quality loud-speaking telephones, linked by an NZPO conference call.

At present, the network is regional. During 1987 another permanent network extending throughout New Zealand will be established. . .

It is helpful to think of the teaching network as a collection of local groups which meet together for a common purpose.

The teleconference network is based on a high quality audio system designed and built by the University in co-operation with the Telecommunications Division of the NZ Post Office. The system is interactive; all members of the group can hear one another, ask questions, and engage in discussion.

Slide projectors and video playback equipment at each site can be interlocked and thus controlled by the lecturer, as long as they are compatible with the University of Otago's teleconference equipment.

This comprises a *Unitel* terminal (approximately 30 cms x 20 cms x 10 cms), an extension speaker, table microphones, and, later, a keypad unit for the remote control of interlocked equipment.

Setting up this equipment is easy (simply a matter of plugging in to sockets), but a room where it can remain assembled is ultimately more convenient.'

The importance of this teleconferencing system is that it is interactive, permanent, and relatively cheap to use. This makes it attractive. It is already used by Massey University, Lincoln College of Agriculture, the Ministry of Agriculture, for field officer training, and various community, voluntary and church groups.

It is intended to have three sites in each centre so there will be comprehensive accommodation of learning needs; university, community-based, vocational.

The tutorial system and its advantages are described by one of the project staff as follows.

'Participants in the tutorial or meeting or training session sit around a table as in a conference setting. Each person operates her own table microphone. *Telephones are not used*. Participants in all centres can hear and speak with one another, and so can take part as if all in one room. The convenor or lecturer can transmit from any town and can remote-control all centres' slide-projectors. . .

Initially, the national system will be similar to the regional: *interactive audio*-conferencing, supported by slide and video playback equipment. In the second phase of development, as funding permits, computer and video technology will be added to the system. In the first instance, 'electronic blackboards' will be used, enabling material written or drawn to be received 'live' on screen. A prototype unit has already been constructed.

In the quite foreseeable future, computerised graphics will be available in each centre via microprocessors. Teaching material will be stored prior to each session, and either displayed or printed for local distribution. This type of teleconferences is called a 'media mix', comprising two-way audio and remote graphics facilities.

While, initially, video tapes will be distributed in multiple copies – to be played at local terminals by manual operation – it is hoped that agreement can be reached with Television New Zealand for after-hours use of the national carriers. Thus, automatic recording at remote terminals can occur by prior broadcast for the following day's sessions. Two-way 'live' video is unlikely to be used. . .

The social effects of a national teleconference system could be, with planning, only positive and desirable. First, by virtue of its placement – from Northland to Southland, and in smaller rural centres as well as main towns – it will increase *general access to learning opportunities*. Not to have to travel (which costs time and money) removes many significant barriers for a widespread population. The cutting of personal costs – in terms of time and travel – could even be accompanied by improved programme quality as national resources and expertise can be accessed simultaneously.

Second, the system can *spread the costs of learning*. On the established regional system, this became clear at once. The bug-bear of the numbers game (enrolments versus costs) is seldom a

critical factor because of numbers-aggregation. Courses, clearly unviable at a *local* level, because they cater for minority or specialist interests, can still be offered locally: the 'one classroom' principle. For example, a recent programme on Mediaeval Monasteries was available in Gore to a single participant — because in Cromwell, Alexandra, Balclutha, Oamaru, there were sufficient others who shared her special interest. This 'one room' principle will also apply nationally, meaning common majority interests need not override all others. Thus learning needs can be met on a much more individual basis.

Third, changing employment patterns and new technology, inevitably, will change traditional work ethics. Increases in leisure-time will occur for many people as fewer paid jobs exist or are even necessary to production. The widespread availability, through teleconferencing, of voluntary work training and of leisure skills programmes should be included in our planned priorities.

A further aspect to consider in the field of work generally is the ever-growing need for 'keeping up' or for retraining. Access to opportunities to *maintain* one's expertise, or to acquire *new* skills to meet changing markets, could be a positive social benefit of the teleconference network. It is in the national interest that smaller communities remain viable and attractive as places to live and work in. If professional, vocational and leisure-time interests can be adequately served within them, it is possible that changing work patterns will threaten them less.

Experience in mounting programmes, provincial and national, has shown that virtually no subject defies teleconferencing. Librarians have found this, discussing 'weeding' guidelines; teachers have used the system to examine new curricula; spinners, weavers and embroiderers have 'teleconferenced' their thoughts about design.'

(Source: Claire Matthewson, 'A national teleconference network, its possibilities and approaches'. *New Zealand Journal of Adult Learning*, Vol 17, No 2 Oct 1985)

The united system described above uses purpose designed equipment which is relatively cheap. This system has been described at length, as it has interesting potential for countries with scattered populations.

CONTINUING EDUCATION FOR RURAL HEALTH WORKERS

'The African Medical Research and Education Foundation (AMREF) is probably better known as the East African Flying Doctor Service. A voluntary organisation, affiliated to the World Health Organisation, it controls a flying doctors' network serving over 60 hospitals in Kenya, Tanzania and Uganda. AMREF also has a training department which works with the relevant Ministries of Health to support primary health care workers in rural areas.

There are over 7000 such workers in Kenya, many in remote rural areas where they have little contact with other medical personnel and their knowledge can deteriorate rapidly. AMREF collaborates with the Kenya Ministry of Health to provide refresher courses. The aim is to give each health worker an opportunity for training at least every two years. Traditionally short face-to-face courses have been used, but the task of catering for everyone is enormous. In areas where the population is sparse, it is impossible to collect together a sizeable group of health workers for a course. If a worker in a remote area attends a course, a dispensary may remain closed for weeks. An alternative is needed.

In 1980 AMREF began to test a correspondence course. It is designed for enrolled and community nurses, although a few others have been accepted. It is on the subject of communicable diseases, and aims to help health workers manage patients suffering from such diseases, and prevent them spreading.

The course consists of twelve printed lessons, each culminating in a test. Lessons are posted in batches of three to the students, and each test is mailed back to the tutor in Nairobi for marking.

As the course started as an experiment, a limited number of students was accepted to start with, and most of these enrolled after attending a refresher course. The first enrolments were in February 1980. By August that year 110 had enrolled, and in December an assessment was made of their progress. Eleven had finished the course, most of them recently. Forty had not yet started, and many of these had to be classified as drop-outs. The rest were still studying.

This was, of course, only a preliminary assessment of the course, but it indicated that the system was working effectively and that over half the students were keen enough to study

seriously. The lessons themselves provided adequate teaching; one test was given to a group after a conventional refresher course and this group achieved a slightly lower average score than correspondence students doing the same test. The evaluation revealed a number of minor problems both in the administration and in the materials. Only a further 100 students were therefore accepted during 1981/2, while these difficulties were being sorted out. At the same time, further courses were being developed and in 1983 the programme expanded with several courses running simultaneously. In 1986 there were over 6000 students, and courses were also available in Uganda and Tanzania.

The experiment has proved a success in providing an alternative to face-to-face refresher courses. The correspondence lessons are highly acceptable. Problems have mainly been with communications; sometimes the post has been very slow, at others students have been transferred to new posts and temporarily lost touch.

The scheme is one which could well be copied elsewhere. It also provides a useful example of how it is possible to make a small-scale start with limited resources.'

(Adapted from J. Jenkins, *Mass Media for Health Education*, International Extension College 1983.)

The AMREF course has remained unique, surprisingly, as it meets a common need in a practical way.

HEALTH EDUCATION FOR THE GENERAL PUBLIC

Our survey of distance learning in the Commonwealth showed a very low use of radio. Perhaps that is why there is such a poor showing of health projects: radio, particularly in developing regions, is an excellent medium for health education. But it appears that radio learning groups, popular in the 1960s, are out of fashion. With a trend towards using distance methods for formal education, there is lack of interest in or lack of funds for non-formal projects.

Yet health education at a distance can be most successful. The Mauritius College of the Air, for example, runs a programme in mother and child health which uses television programmes, booklets, posters, flannelgraphs and face-to-face support in clinics to help mothers care better for their babies. There was no formal evaluation of the project, but informal indications are that it was a great success, judging by its popularity with mothers and health workers. Demand from clients led to the extension of the project, and a determination to launch further multi-media campaigns in Mauritius.

ALTERNATIVE HEALTH

In Britain, and probably in other developed countries, alternative medicine is becoming popular. (In many developing countries, of course, traditional medicine still thrives as an alternative to western styles.) A recent survey of members of the UK Consumers Association discovered that one in seven had in 1985 consulted a 'complementary practitioner' (osteopath, homeopath, acupuncturist, chiropractor or herbalist). In the light of this demand, it is hardly surprising to find that training courses for alternative practitioners abound. It is, however, surprising to find 11 advertisements for different correspondence training courses for the various kinds of medicine in a single issue of the monthly magazine 'Here's health'. We wrote to all of them to find out more, but only four replied. One college had 250 trainees on its roll, one had a hundred, one had 10 and the fourth did not give any figures. Clearly, there are plenty of clients for such courses. We know nothing of their quality; probably some providers are charlatans, but most will be genuine practitioners trying to meet a need, but out on a limb. Poor quality would largely be due to inexperience and limited resources, but could all the same lead to inferior training. There is a case for further investigation of and support for such ventures.

COLLABORATIVE INITIATIVES

In the health sector, particularly at higher levels, there is considerable unity of subject matter internationally. Moreover, when a breakthrough occurs in treatment, skills and techniques need to be passed from country to country as fast as possible. It is hardly surprising, then, that several international initiatives in health training are already being developed.

1. The Wellcome Tropical Institute: training for rural medical officers in Africa.

This new initiative aims to help rural medical officers in Africa to maintain and improve the standard of medical care they provide. It will provide them with further in-service training, through distance-learning modules. Initially, the modules will cover certain specific areas which senior medical personnel and rural medical officers themselves have identified as needing special attention, such as treatment of burns and acute respiratory infections. It is hoped that in the long run doctors will be able to accumulate credits, through studying a range of modules, towards post-graduate diplomas, ideally accredited by local universities.

Initially, modules will be available in 3 or 4 African countries, including at least one Commonwealth member. These countries will operate the course on a pilot basis, before expansion to many countries.

The main component of each module is a pack of printed materials: a printed course unit and a set of extracts and readings. In each country there will be a resource centre, which will also serve as a branch of the WTI museum, and this will hold relevant supplementary materials, including audio and perhaps video elements.

The modules will be designed and produced in Britain, and piloted in each country of use. It will be possible to adapt elements such as case study material to suit each country, as the texts will be stored on discs, and case study material can easily be duplicated at need for the small numbers of students in each country.

Although the production of the modules will be coordinated in London, it is intended that participating countries will contribute to the writing. This will be done initially through bringing study fellows to London, and one has already been for three months to work on module planning and drafting.

Each country will establish its own student support services, with the initial assistance of the WTI. The local university or Ministry of Health will undertake to nominate a coordinator, who will appoint tutors, arrange recruitment of students, manage the distribution of materials, keep records, and look after the resource centre.

To operate effectively, therefore, the scheme requires the collaboration of three organisations:

WTI: to provide materials and advise on establishment of 'schemes'

Ministry of Health: to provide political backing, logistical support, and finance (see below)

University: to provide professional/academic services, and validation of courses (see below)

The Wellcome Institute finances the development of materials and establishment of the scheme. Thereafter, the scheme should be able to operate with minimal or no external assistance. This will require financial commitment from the Ministry of Health and the trainees. Money will be needed to cover:

coordinator's salary and office
continued supply of materials

correspondence tuition
examination fees

Most countries will probably share these modest costs between fees requested from students and funds from government. While no long-term costing has yet been done, the costs of taking a doctor through a diploma course by this route will be low, and of course particularly advantageous when opportunity costs are considered.

While this scheme is still to take off, the initial legwork has both served to shape it and to indicate that there is wide support for it. It will be a step forward to provide such training without removing medical officers from their patients; and, even better, to provide them with job-related information while they are working.

2. Project SHARE (Satellites for Health and Rural Education)

In 1985 Intelsat, the international telecommunications satellite system, and the International Institute of Communications launched a scheme to increase public awareness of the usefulness of satellites for educational and health purposes. It provides free satellite access for rural health and educational programmes using new satellite technologies. Originally a 16-month project, it was extended till the end of 1987, and 37 countries have participated. Most projects are affiliated with hospitals, universities or professional bodies, and sponsors design the content, raise the

money and take responsibility for terrestrial links. Examples from Commonwealth countries include international videoconferences linked with the 1985 UN Decade for Women Conference at Nairobi, teleconferences between Nigeria and New York, to show and discuss cultural performances for teaching theatre arts in both locations, and telemedicine links between Memorial University of Newfoundland and East Africa. The extract below describes this last at some length.

'Following a planning visit to Kenya and Uganda by the Director of Memorial's Telemedicine Centre, Memorial's application for participation in the SHARE Project was accepted. In Africa the program was sponsored by CHAMP with support from the Canadian International Development Agency.

A link between Uganda, Kenya and various Canadian medical centres seemed particularly appropriate in view of the medical cooperation between these countries during the past fifteen years dating back to the CIDA-sponsored McGill involvement with the development of medical faculty at the University of Nairobi during the late 1960s and early 1970s. Under that program many of the faculty at the University of Nairobi received training at McGill in Paediatrics and Medicine and a number of Canadian physicians served as visiting faculty in Kenya. More recently, a series of Canadian paediatricians have served in Kampala under the Memorial University of Newfoundland CHAMP program, aimed at restoration of the paediatric program in Makerere University to its former stature. Because of these programs, there are numerous close personal contacts between Ugandan, Kenyan and Canadian academic physicians and this has facilitated the organization and execution of telemedicine programs of an educational or consultative nature.

During the period 1984-1985 support for the project was obtained from several organizations including CIDA, the Hospital for Sick Children Foundation, the Kenyan Post and Telecommunications Corporation, the Uganda Post and Telecommunications Corporation, the University of Nairobi, Makerere University, the Newfoundland Telephone Company, and Teleglobe Canada. The satellite circuits between Canada and Kenya were provided free by the SHARE project. Microwave circuits were utilized between St. John's, Newfoundland, and the international gateway terminal in Montreal and between Nairobi and Kampala. The teleconference system was in place by December 1985 and the official opening took place in January 1986 between Kenya and Canada. A month later the link was extended to Uganda.

Initial Experience

Since the inauguration of the system on January 15th, 1986 there have been formal weekly conferences as well as informal teaching sessions. The formal didactic sessions have covered such topics as nutritional status and immune response, the management and treatment of idiopathic thrombocytopenic purpura, hepatitis in pregnancy and the newborn, and the epidemiology of HTLV III in East Africa. The Hospital for Sick Children in Toronto and the Montreal Children's Hospital have also contributed to the programs. Topics presented from these centres include emergency paediatric medicine, failure to thrive, and rickets.

An electroencephalogram transmitter was initially used in Nairobi for several weeks before being moved to Kampala where there is no functioning EEG laboratory. Electroencephalograms are transmitted from Mulago Hospital in Kampala to the EEG Department of the General Hospital in the Health Sciences Centre at St. John's twice weekly. The tracings are of excellent quality and can be interpreted with confidence.

The system is also able to provide a cost effective means of maintaining communication between North American medical research workers based in East Africa and their home laboratories. Teleconferencing facilitates group discussion of research objectives, protocol development, and data analysis and this may be done at reasonable cost. The present cost of conventional telephone links between East Africa and Canada is a considerable deterrent to the maintenance of communication.

It is hoped that the teleconference system may also provide supplementary support to the hard pressed libraries at the University of Nairobi and Makerere. These libraries have found it difficult to maintain up-to-date journal files and their facilities for literature searching are also limited. An attempt will be made through the teleconference system to develop on-line literature searching capacity with transmission of search requests at off-peak hours to minimize costs.

One of the main objectives of the Memorial/SHARE project is the transfer of expertise and technology to the University of Nairobi and Makerere University so that these two organizations can have a functioning teleconference system after the SHARE project is

finished late in 1986. It is also anticipated that other East African countries may participate in such a permanent system.

It is too early to assess fully the impact of the current teleconference link programs at these two Universities; however, it promises to become an important adjunct to teaching in the Departments of Paediatrics and probably in related medical departments as well. For example, the teleconference link has been used on a number of occasions to initiate contact and discussion between the Faculty of Pharmacy at the University of Nairobi and the Pharmacy Faculty at the University of Toronto. Such contact may eventually lead to international cooperation in the establishment of a drug information service in Nairobi. The postgraduate trainees in paediatrics at both Universities have shown considerable enthusiasm for this project. Most formal sessions are attended by the majority of trainees and the level of audience participation has steadily increased as the residents become more familiar with the system.

Of potentially greater importance is the link between the Departments of Paediatrics in Nairobi and Kampala. The department at Makerere University has seen its efficiency reduced by several years of civil strife and uncertain support. The present ratio of faculty to postgraduate paediatric trainees is unsatisfactory and the availability of the teleconference system represents a major opportunity to redress this imbalance. With the system currently installed it will be possible to establish regular teleconference communication between the University of Nairobi and Makerere University so that these two neighbouring departments of paediatrics will be able to share in each other's academic activities including grand rounds, seminar discussions, case presentations, and formal teaching sessions. The link between Nairobi and Kampala can be used independently of the Canada-Africa satellite link, therefore additional conferencing can take place during the morning hours in Africa. It is anticipated that, following this year's project, a commercially available system between Nairobi and Kampala will be financially feasible.'

(Source: Memorial University of Newfoundland, Bulletin 16)

The Newfoundland-East Africa link is being used for both medical education and related diagnosis. If the link is sustainable over the long term, it would be interesting to extend it to other areas of education, on the lines of the work of the University of Otago, New Zealand, described earlier.

3. Health Learning Materials Network

A third initiative is concerned not only with using distance methods for training for specific groups of health workers; it is concerned with providing full and appropriate health education and training at all levels. This is the Health Learning Materials project of the World Health Organisation and United Nations Development Programme. The coordinating group, based in Geneva, encourages the formation of groups in various countries which will develop health education materials for their countries. Started only two or three years ago, the network now has groups in twenty countries. The coordinators provide technical expertise, funding training and equipment to help country projects start. The programme is effective, and national groups are running seminars and printing their own health-worker training manuals; Kenya, for example, has produced six manuals at a unit located at the Ministry of Health.

The network coordinators are interested in distance learning as a method for training health workers, and are planning an international workshop on the subject in 1987. With national groups already providing something of a local infrastructure, it looks as though at last there is a possibility that AMREF's successful training model may be adopted elsewhere.

CONCLUSIONS

Distance education is undoubtedly a powerful tool for medical and health education, but present activity is very patchy. There is a need for coherent policy and action to improve and coordinate provision at all levels, possibly by means of a small permanent unit. A first step would be the establishment of a working group to consider needs and possibilities more closely and propose terms of reference for a permanent coordinating unit, if this seems desirable.

One task of such a unit would be to coordinate and promote the development of specialist postgraduate courses in medical subjects. These should ideally be modular, so that courses on discrete topics could be used as a sort of international currency. One selection of modules could thus

form a diploma for one profession at one university, and a different set could be chosen by another university in another country. The examples quoted in this paper of courses for professionals suggest that such a system would not be too difficult to develop. The scheme planned by the Wellcome Tropical Institute is already planned as an international scheme.

For small numbers of students it is possible to consider adapting materials for each country, for example by introducing local case studies. With word-processing technology and desk-top publishing, it has become possible for a small organisation with modest resources to manage such adaptations with little difficulty.

The examples of teleconferencing show how useful the technique can be for teaching medical workers, whether as a supplement to a distance course or on its own. With its relatively small, scattered specialist groups, in-service training for health professionals is a suitable candidate for teleconferencing, and it is desirable that it should be used more widely in combination with other forms of training.

At the upper professional level, much training could be offered internationally. At the middle level of health workers in rural communities internationally available courses are less likely to be suitable, but the constituency for training is much larger. There is a great need for systematic in-service training for health workers, and it is desirable to use distance teaching techniques for such training. In many countries there are barriers between ministries of health, who know the educational needs of their employers, and ministries of education, who know how to teach them. One task of an international unit might be to act as a broker, suggesting from its experience ways of forming partnerships between ministries to provide distance education.

Finally, distance education is barely used at basic levels. Techniques of running multi-media educational campaigns have been developed, and many such campaigns (not all in the health field) are notable for their success. It is a matter for grave concern that such a powerful technique is neglected. Unicef has identified three simple priorities for action, to save the lives of hundreds of thousands of babies; all mothers need to learn simple rules of hygiene, to know how to administer oral rehydration therapy to babies with diarrhoea, and to take their babies to the clinic to be immunised. Hope for vulnerable babies rests on education for their mothers. Why are we making so little use of the mass media and distance education to save lives? We could also use these techniques to teach people about AIDS: one advantage of distance education, especially when broadcasting is used, is the speed with which messages can reach the audience, and speed of communication is of the essence to slow the spread of disease.

There is a case for a small task force to concern itself with mass media campaigns for health education. It would need to publicise its services, visiting ministries of health and convincing them of the worth of campaigns. It would then need to help ministries to set up campaigns, with advice on research, on presenting the messages, on setting up group study and other support services, and on organising the infrastructure. It seems unlikely that campaigns will become a popular method for health education without such a task force of experts to push the idea and to give backing to those who decide to try the method.

While in some other areas distance education is well established and needs opportunities to expand and develop, in the health and medical sectors it is sadly underused.

COMMONWEALTH COOPERATION IN OPEN LEARNING

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Printed and published by
The Commonwealth Secretariat

May be purchased from
Commonwealth Secretariat Publications
Marlborough House
London SW1Y 5HX

ISBN 0 85092 325 5

