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*Reaching the unreached through distance  
education: costs, outcomes and  
sustainability*

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# Reaching the unreached through distance education: costs, outcomes and sustainability

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Providing basic education to millions has been one of the biggest struggles of developing countries during this century. Where expanding education opportunities through conventional means put strains on the already shrinking education budgets, it is time we explored the feasibility and the effectiveness of open and distance learning methods. Although the open and distance learning has expanded dramatically, and gained a new legitimacy during the last three decades, the international attention has been on its use in higher education, and its practice in developed countries. Research on open and distance learning too has been focused mainly on higher education and developed countries. While there is considerable experience of the use of open and distance learning for basic education through school support, teacher education and out-of-school education, lot of this work is scattered and under-documented. Therefore we are short of policy guidance that would help decision makers in ministries of education and funding agencies to reach conclusions based on educational and economic data, about the comparative merits of contrasting approaches to raising quality. This paper presents some early conclusions of a two-years research project aimed at providing policy guidance for the decision-makers based on research evidence on effective use of open and distance learning for basic education in developing countries.

## 1 THE RESEARCH PROCESS

We began the two-year research programme by reviewing the current experience of the use of open and distance learning for basic education in developing countries. The literature in this area is scant and mainly dominated by reporting of the practice of individual institutions, without lending to international comparisons. There are only a few recent studies that compare the merits of open and distance learning with that of the conventional alternatives. There is lack of information on costs and outcomes, too. Numerous programmes have been educationally effective, but have not survived beyond pilot stage, and few studies have focused on the factors contributing to their sustainability. There has been only few attempts to analyse the core features of various organisational and delivery models that can guide the decision makers as to the best suited models to fulfil the needs of the country to achieve particular objectives.

The research adopted the definition of basic education as:

‘education at primary and secondary levels, addressing both children and adults, and includes both programmes equivalent to conventional primary and secondary education and those with an alternative curriculum in health, nutrition, family planning, literacy and agriculture’.

The research attempted (a) to find evidence of merits of open and distance learning for basic education, (b) to study the factors contributing to success and sustainability, and (c) to study the core features of various models of organisational and delivery structures to illustrate effective operation of various sub-systems within the programmes. The outcomes of all the three will be used to formulate guidelines for policy makers.

Approaches within the above definition include:

- in-school programmes
- out-of-school programmes providing general education to mixed audiences; and
- out-of-school programmes providing specific training for adults.

In-school programmes are aimed at children of school-going age, and are provided within school alongside the normal classroom instructions. The objective of these programmes is to raise the quality of teaching and learning in schools. 'Out-of-school' programmes, on the other hand, provide opportunities to those who do not have access through conventional means due to geographical, economic, and social reasons. This audience may consist of children, adolescents, and adults, hence the term mixed audience.

Based on the performance and the evidence of sustainability, we have selected six representative programmes for in-depth studies: Interactive Radio Instruction in South Africa, National Open School in India, Department of Non-formal Education in Thailand, Computers in schools and teacher training in Botswana, Non-formal education programmes in Botswana, and Radiophonic schools in Canary Islands and Latin America.

The analysis presented in this paper is drawn from information gathered from literature as well as the case studies carried out during the course of the two years. The paper provides an account of the selected programmes providing contextual information, the media and methods used, and the evidence of cost and outcomes. Finally it provides guidance to good practice in relation to educational effectiveness and sustainability.

## **2 IN-SCHOOL PROGRAMMES**

These are the programmes to serve the children of school-going age. The experience seems to suggest that young children need some type of formal institution like a school in order to learn a formal curriculum effectively (Perraton, 1992). Therefore programmes for children rely mainly on face-to-face teaching. Within this commonality, the organisational and delivery structures vary between the developed and developing countries. In Australia, New Zealand and Canada, children have facilities to learn at home under the supervision of parents supported by teachers of a base school-of-the-air operating at-a-distance. The education level of the parents is a necessary factor for the success of this model. High level of illiteracy among the adult populations in developing countries means that such models are difficult to implement. Therefore, for children of school-going age, open and distance learning methods have been mostly used to improve the quality of instruction in schools.

### **A brief account of programmes**

Along with the invention of radio and television, numerous in-school programmes have been tried out in developing countries. One survivor among them is the Interactive Radio Instruction model, a well-researched and well-documented approach pioneered by the Stanford University in the US in 1974. Interactive Radio Instruction method consists of a series of: 'interactive lessons in which an external teaching element, delivered by a distant teacher through the medium of radio or audio cassettes, is carefully integrated with classroom activities carried out by the classroom teacher and the learners' (Dock and Helwig, 1999, p. 7). The radio does the main teaching, and directs learning activities (exercises, answers to questions, songs and practical tasks) that take place during carefully timed pauses in the audio script. The classroom teacher's role is often to facilitate the lesson, give individual guidance to learners and provide follow-up support after the audio component is finished. The main features that distinguished IRI from other educational radio broadcasting were: a robust curriculum development approach derived from learning theories and techniques, extensive pre-testing and other forms of evaluation, and providing day to day instruction (Friend, 1980).

Since the first pilot programme in Nicaragua, IRI projects have been launched in more than 20 countries in Asia, Africa and Latin America (Mayo, 1999), covering a variety of subjects (mathematics, health, English, Spanish, and environment) for a range of audiences (primary level children, teachers, and adults). A depressingly high proportion of these IRI projects, after successful testing at pilot stage, failed to be incorporated into the national school system. One of the latest of these experiments, in South Africa, seems to be surviving for a long period. For the current research we have selected the IRI programme in South Africa because of its evidence of success and sustainability.

### *IRI in South Africa*

The South African IRI was implemented in 1992 by the Open Learning Systems Educational Trust (OLSET), an NGO, based in Johannesburg. Initially the USAID provided the funds and LearnTech provided the technical support. Currently funding for the running of the programme comes from foreign donors, the main source being Norwegian aids. The audience of the South African IRI programme comprises of Black children in Grade 1, 2, and 3 of primary schools. The programme provides daily, half-hour English lessons, either through radio broadcasts, or through recorded cassettes, to grade 1, 2, and 3 classrooms of Black primary schools. The teachers also receive support and training on IRI methodology through a network of co-ordinators. The original design was based on the early IRI model pioneered by the academics at Stanford University. Soon the curriculum and the instructional design changed according to the needs of democratic South Africa (Naidoo, 1998; Potter and Leigh, 1995). The programme tries to get more teacher involvement and more peer interaction among the learners.

### **Costs**

Programmes for improving the quality of teaching and learning in schools are usually add-on costs to the existing educational budgets. Therefore the cost of running IRI programmes is also an additional cost to the regular educational expenditure. The recurrent cost of IRI in South Africa in 1998 was US\$1.8 per learner per year.

### **Outcomes**

The outcomes of the South Africa IRI programmes could be measured in four ways: the number of learners who study from IRI programmes, their learning gains, the kind of audience served, and teachers as secondary beneficiaries. First, the enrolment figures show a phenomenal growth during its six-year history. There were about 500,000 learners from grades 1, 2, and 3 during the school year 1999, compared with 13,000 in 1993, when the programme was first launched on a pilot basis. Second, there has been a significant increase in the test scores of the students who learned from radio programmes, which comply with other evaluations of IRI programmes elsewhere. Test scores have shown 20 percent increase for IRI learners than for a control group. The improvements in test scores have been higher for the learners in rural schools than for those in the urban schools. The third outcome measure is that the programme serves a much-disadvantaged section of the community. South African IRI was initiated when the Blacks were under an unfavourable educational policy, and even after the democratic elections in 1994, most of these schools are still under-resourced. Therefore IRI in South Africa reaches a most sought after audience, as is the case with other IRI programmes in developing countries. Finally, there were about 12,000 teachers who use the programmes in their classes. Evidence suggest that teachers, as secondary beneficiaries of IRI, acquire better communicative skills in English, and become better at teaching.

## **2 OUT-OF-SCHOOL PROGRAMMES FOR MIXED AUDIENCES**

The aim of the out-of-school programmes is to increase the educational opportunities for children and mixed audiences. In affluent countries such as Australia, Canada, and New Zealand, these programmes provide education opportunities to the disadvantaged population groups in dispersed

locations where conventional schools are not viable, providing a choice to students, and their parents for what they want to learn (Mukhopadhyay, 1995). In developing countries, however, the picture is much more complex. Out-of-school education is expected to solve a variety of problems: the presence of a large proportion of adult population who have already missed out general education, inequality of access due to social, economic and geographic conditions, and high drop out rates in conventional schools.

## **A brief account of programmes**

Table 1 compares and summarises some of the main features of six out-of-school programmes for mixed audience. Except the Telesecundaria in Mexico, the other five programmes are not limited to one country. We can talk about these programmes as 'models' (Perraton, 2000), because most of these programmes, or their adaptations, are available at least within a particular geo-political region. For example, Supervised study centres are common in the Sub Saharan Africa; Open Schools in Asia, with its variations in India, Indonesia and Bangladesh; and Radiophonic Schools in Latin America. Programmes offered by the Departments of Non-formal Education within the Ministry of Education (MOE) are common in most of the countries, with varying success.

### *Sub-Saharan Africa: Study Centres*

Many post-colonial African countries could not expand the conventional schools within their shrinking budgets, even within a generation or more (Perraton, 1982). They chose distance education as an alternative model, which was becoming popular in rich countries at that time. Study Centre model was the particular organisational structure that was established to provide education at a distance in three countries in Sub-Saharan Africa: Malawi, Zambia. Most students of these programmes are primary-school leavers working at junior secondary level. All the three countries use an approach which recognises that these students need considerable support and have combined the use of print correspondence materials with support from tutor. 'The basic learning package is the same in the three countries. On enrolment students receive printed correspondence courses and access to a marking service. They then register in a local study centre (called an open secondary class in Zambia) where they meet every day. They are supervised by individuals who are either primary school teachers or reasonably well educated adults, and they may get the opportunity to listen to radio programmes or taped instruction (Curran and Murphy, 1992, p.19). The courses provided are equivalent to those of the regular school, and at the successful completion of the course the learners gain certificates that are comparable to those gained from formal schools. Learners study at the study centres, under the supervision of facilitators, using the print materials specially prepared for them. Radio and other audio-visual media are also used to some extent.

### *Asia: Open Schools*

In the South Asian sub-continent, the immediate post-independence era was too early a time for the establishment of open and distance learning initiatives for out-of-school populations. Innovations such as the UK Open University, which became one of the main influential factors later on, were still to come. The formal education system has been leaving behind a large proportion of people who were not able to read and write. High population growth was adding to the problem, while social, cultural and geographic reasons limiting the access to education for marginalised communities.

Organisational structure		Telesecundaria	Supervised Study Centres	Open Schools	National Open School	Department of Non-Formal Education	Radiophonic Schools
Region/Country		Mexico	Zambia and Malawi	Indonesia	India	Thailand	Columbia and many Latin American countries
Date started		1966	1987, following National Correspondence College in 1964 in Zambia	1984, after 5-year pilot	1989, following a ten-year pilot project	1979, following non-formal education since 1938	1947
Status and governance		Ministry of Education	Ministry of Education	Ministry of Education	Autonomous within the Ministry of Human Resources Development	Independent department within the Ministry of Education	Church-based organisations, NGOs
Audience		Primary school leavers	Primary school leavers and secondary school 'dropouts'	Primary school leavers	14+ years	14+ years	No age limit
Curriculum		Formal, Junior Secondary (7 <sup>th</sup> - 9 <sup>th</sup> grades)	Formal: Junior Secondary and Senior Secondary	Formal: Junior Secondary	Equivalent to formal primary, junior and senior secondary, vocational and life-related	Equivalent to formal primary, junior and senior secondary, vocational and life-related	Non-formal, literacy, numeracy, combined with life-related skills
Teaching media and methods		Television programmes, print, and classroom sessions	Printed, some radio, daily 3-hour supervised study at local centres, tutor marked assignments		Printed study material, weekly tutorials	Printed study material, radio and television programmes, weekly tutorials	Radio programmes, print materials supported by 'auxiliars' in radio schools
Outcomes	Total in-roll	767,696	11,138	197,000	400,000	2,547,664	160,000 - 220,000
	graduation rate	93%	35%	92%	43%	39%	
	Male enrolment		56%		67%	47%	
	Female enrolment		44%		33%	53%	
Cost	Cost per learner	\$554		\$31	\$10	\$26	
	Cost per graduate				\$92	\$66	
Comparative figures: graduation	lower secondary	74%			70%	87%	
	upper secondary				76%	84%	
Comparative figures: cost	per learner			\$178	\$27	\$286	
	per graduate					\$324	

Table 2: A comparison of main features of out-of-school programmes.

Notes:

All cost figures are in US Dollars

Supervised Study Centres: the figures are for the Open Secondary Classes in Zambia, 1990 figures

NOS, India: enrolment figures are for the fiscal year 1998/99; outcomes and cost figures are for fiscal year 1997/98.

DNFE, Thailand: all figures are for the fiscal 1997/1998.

IRI, South Africa: enrolment figures are for the fiscal year 1999. Cost figures are for the fiscal year 1998.

Open School, Indonesia: Enrolment figure is for fiscal year 1996/97, graduation rate for 1993, cost for 1997/98 and comparative figures for 1995.

Telesecundaria, Mexico: enrolment and cost figures for 1996/97.

NOS' total number of graduates' figure consists only of the secondary and senior secondary levels. The enrolments of vocational and bridge courses constitute only 2% of total learners.

The graduation percentage for DNFE has been calculated based on the total number of learners in the system during the year. This is compared with the rate of transition of the formal system for various levels.

\$1 = 37.12 Indian Rupees (average conversion rate 1.4.1997-31.3.1998)

\$1 = 5.53 South African Rand (average conversion rate 01.01.1998 - 31.12.1998)

\$1 = 42.02 Thai Bahts (average conversion rate 1.10.97 - 31.09.1998)

\$1 = 2,200 Indonesian Rupiahs at 1995 rates

The first programme to provide education out-of-school was the Indian Open School project in 1979, which after ten years became the National Open School (NOS). Ten state governments followed this example and initiated their own State Open Schools. Pakistan established the Mass Education Programme in 1982 and Bangladesh initiated the Open School of Bangladesh in 1992, both were offshoots of their national open universities, while the NOS was established as an autonomous body. The implications of these arrangements for success and sustainability will be discussed later.

NOS' learners include the unemployed, the employed and the marginalised such as women, scheduled castes and tribes and disabled. The curriculum is a flexible one that offers a range of subjects of which students can combine several. Upon successful completion, they can get a certificate that is comparable with the formal system. Learners also can take courses leading to vocational training and life enrichment. The main courses offered include open basic education (a foundation or a bridge course equivalent to standard 8 in conventional system), secondary certificate course (equivalent to the 10<sup>th</sup> standard), senior secondary certificate course (equivalent to 12<sup>th</sup> standard), and vocational. Plans are underway to offer primary level courses too. Learning material include print and audio-visual programmes. Students attend personal contact programmes at study centres where tutorials and counselling are held. Assessment is based on examinations held by the ministry of education and certificates are issued once the students accumulate the necessary credits.

Newly industrialised nations in East Asia, such as Indonesia, started their open schools for mixed audiences since the late 1970s. The governments in these countries saw secondary education as a necessary factor for industrialisation, and the expansion of primary education has created a huge demand for secondary education. Shortage of qualified teachers and school buildings were some obstacles for the expansion of secondary education through conventional means.

To meet the demand for secondary education, together with expanding the conventional schools, Indonesia expanded its open schools in 1984, which they had been piloting since 1979 (Perraton, 2000). Those who attend the Open Schools are mainly from poor and rural families who have to work within and for the family. The Open School is part of the formal school system so that the students follow the same curriculum and take the same examinations. The main teaching medium is print, with materials being developed centrally with the intention that they would promote individual learning. These are backed by television and radio broadcasts twice a day on weekdays. One key difference of Indonesian Open Schools is in the way it supports and teaches students. Each open school is attached to a regular junior secondary school. This base school then has the responsibility of appointing a teacher's aide who meets students and marks their assignments. Students are expected to meet for three hours daily, for or five times a week, and attend weekly three-hour sessions with subject specialists at the base school. Thus they are expected to have fifteen to eighteen hours of supervised study a week, which contrasts with a normal twenty-seven contact hours in the regular schools. Open school students can take their problems either to the teacher's aide or to the subject specialist at the weekly sessions there.

### *Thailand: DNFE programmes*

A different model in South Asian region is the Thailand Department of Non-formal Education. The programme has a long history, dating back to 1938 when the then government was concerned about the problems of modernisation and the elimination of illiteracy. The illiteracy rate among the 20-year plus population was about 68 percent in 1938, and since then the government launched a series of campaigns and programmes to raise the literacy and provide basic education to out-of-school populations. In 1979, the Thai government established the DNFE, under the Ministry of Education, by bringing several government organisations that were providing non-formal education during the preceding four decades. The DNFE provides a range of courses aimed at increasing access to out of school people, and include functional literacy, primary, lower secondary, upper secondary and vocational. Learners, aged 14 years or more, can enrol in one of the three learning approaches: face-to-face, distance, and self-study. The DNFE prepares its own curriculum, based on the ministerial guidelines, and prepares learning material. The main learning material is text, and is supported by

radio and television. Students receive counselling and tutorial at learning centres, through volunteer teachers.

### *Latin America: Radiophonic Schools*

Behind the birth of Radiophonic schools is a remarkable story of a village priest who saw radio as a better means of reaching his rural people with both an educational and a spiritual message that might improve their lives (McAnany, 1976; Fraser and Restrepo-Estrada, 1997). Fr Salcedo, the pioneer of ACPO system, began the programme with an amateur radio transmitter with an output of 90 watts in November 1947. His efforts grew into a national organisation, Accion Cultural Popular (ACPO), which later influenced the establishment of similar programmes internationally: 25 programmes in 17 Latin American countries and in Canary Islands (*ibid*).

The main features of the Radiophonic school model are (*ibid*, p.13): (1) the audience is rural children and adults; (2) efforts are directed to literacy and basic education, although in some places primary equivalency is offered; (3) schools are small organised listening/learning groups (normally three to ten, all members of one family, or they might be from different families in the neighbourhood) meeting in homes, churches, etc., under the charge of a local volunteer or monitor; (4) field organisation is usually in the form of supervisor (sometimes paid) who tries to co-ordinate the activities, distribute the material and visit and encourage groups from time to time; (5) the basic approach is radio, printed booklets, charts, newspapers, and other supplementary materials; (6) all the projects are run by private organisations, usually affiliated with the Church; (7) their finances come from private funds and donations, often from International Catholic agencies, sometimes from a government subsidy and less frequently from self financing; (8) each project its own production and broadcasting stations; (9) broadcasting consists of not only educational programmes, but also general education and entertainment for rural listeners.

Despite the impressive achievement, after nearly four decades, the ACPO found itself being the target of hostility of the Church and the government (Fraser and Restrepo-Estrada, 1997). Sadly it lost support from international agencies. In 1982 it started to cut of its staff, and in 1987 ACPO folded and most of its assets were sold to pay off its debts (*ibid*). The model, however, still remains in Canary Islands and other Latin American countries. In Canary Islands, it was also a Jesuit priest, Fr Villen, who started the programme. Fr Villen visited ACPO in the early 1960s adopted the programme in Canary Islands, which later became an alternative model to Latin American countries.

### *Mexico: Telesecundaria*

Telesecundaria is a programme for children's education that has been running in Mexico since 1967. It is an out-of-school programme, providing the regular secondary curriculum, parallel to that of the seventh to ninth grades of secondary school. Students attend classes, and receive television lessons, about 30 hours a week, usually in premises provided by local authorities. Workbooks which students have to buy commercially back the television programmes. Co-ordinators, who are mainly primary school teachers, are employed to prepare the class for each broadcast and to help with students' work and follow-up. They supervise the work of students in all three grades and in all subjects. They are supplied with a monthly outline of the ground to be covered in the television programmes and the workbooks. The quality of the broadcasts attracted criticism in the early years although studies showed that they were contributing significantly to student learning (Jamison et al, 1978: 218-21).

### *Dominican Republic: Interactive Radio Instruction*

This programme has been developed by the USAID, following early work in Nicaragua in 1974 and in Kenya in 1980. The aim was to provide a low cost alternative to traditional schooling (Helwig et al, 1999). The programme, named Radio Assisted Community Basic Education (RADECO) was implemented in the south-western region of the Dominican Republic in 1981, where at that time, in

isolated mountains, one-fifth of the children of primary school age were deprived of education by poverty and distance (AID, n.d.). RADECO, started in 1981, is the longest living IRI project, which still broadcasts to rural communities in the southwestern region of the Dominican Republic. The students received non-formal short lessons in mathematics and Spanish that raised their test scores to approximately the same level as students in formal schools. The total population reached so far is now close to 140,000 (Helwig et al, 1999).

The RADECO students work all day in coffee or cane fields. In the afternoons they gather in a shelter that functions as the radio school where they listen to RADECO broadcasts. The broadcasts cover the core curriculum of the formal schools: literacy, numeracy, social studies, and natural science. They learn an hour each day, and they are learning it as well as their counterparts in traditional schools, who spend three or four times as many hours in their classrooms (A.I.D., n.d). The students are not required to wear a uniform, and in fact most parents cannot afford it. As one mother puts it: 'what is important is that the children are taught. They are educated, without regard to material things.' The shelters (*enramada*) are mostly thatched roofs on four support posts built from inexpensive local material.

## Costs

Several studies (Jamison, Klees and Wells 1978; Perraton 1982; UNESCO 1977; and Wagner 1982) show that distance education has the potential to be more cost effective than similar programmes provided through conventional education. Where comparative figures are available, the programmes presented in the table also shows this to be the case. In conventional education recurrent costs rise more or less in line with student numbers. Teachers' salaries, which usually account for a high proportion of total recurrent costs, are outside the control of school managers. In conventional education, therefore, while the costs of teaching students can be predicted with a high degree of accuracy, the measures that managers can take to control unit costs are quite limited (Curran and Murphy, 1992).

Early analysis of Telesecundaria suggests that it was cost-effective compared with the conventional schools (UNESCO, 1977, p. 128). More recently its cost have risen relative to those of conventional schools (Perraton, 2000). The Supervised Study Centres in Malawi, Zambia and Zimbabwe too show that the system can work and could be less costly per student enrolled than the conventional alternative (Perraton, 1992). In Malawi, the cost of educating one student in the study centre system was between one-fourth and one-fifth of the cost of a student in a day secondary school (Curran and Murphy, 1992). The Thailand DNFE, and Indian NOS too show favourable cost figures, according to the Table 1.

## Outcomes

All the programmes seem to reach large number learners in absolute terms, except the Supervised Study Centre model. Although the figure for the Study Centres is the lowest of the examples presented, in terms of the population and of total enrolments at secondary level, the percentage is impressive (Siasiwena, 1995). In Zambia, only less than 20 percent of the primary school leavers are able to enter the conventional secondary school system every year, and the enrolment in the Study Centres constitutes 8 percent of the last year of the primary school enrolment in the country and more than 40% of total secondary level enrolments.

Telesecundaria started with a pilot group of 6500 in 1967, rose to 29,000 by 1971 and had nearly 600,000 students in more than 9,000 schools by 1993, more than 15 percent of the total junior secondary school population (Murphy, 1995, 65). It attracts the poorer and more remote students (Perraton, 2000). Its numbers have continued to grow in pace with the continuing expansion of secondary education generally. By 1997/98 there were 756,000 students in 12,000 centres (International Bureau of Education).

Indonesian Open Schools also show successful growth and enrolment (Perraton, 2000). In the pilot stage there were only eight schools in five provinces, which was increased to fifty-nine throughout the country with a total of 17,478 students. Expansion accelerated after 1994 with the formal introduction of universal basic education. By 1996/97 there were 172,000 students in 956 locations (Sadiman and Rahardjo, 1997, p. 287). It is reported that 92 percent of students passed the national junior secondary examination and that there was no significant difference between the academic achievement of open school and regular school graduates (Sadiman, 1994, p. 97 and 1995, p.155).

The National Open School has enrolled 130,000 learners for the year 1998/99, where as in 1990/91 the figure was little over 40,000, and during its first years of the project stage, the figures were only about 1,000. Sixty three percent of students follow secondary courses and 33 percent follow senior secondary courses. While the School has students of all ages, 68 percent are between fourteen and nineteen. About two-thirds are male, reflecting the balance in secondary education generally. The School had some success in attracting disadvantaged students: 25 percent were from scheduled casts, scheduled tribes and disabled in 1995 (Mukhopadhyay 1995: 98). Most students were from families of income less than the average (Gaba 1997: 44). In 1994/95 31 percent qualified at secondary level and 39 percent at senior secondary level, compared with 70 percent and 76 percent in conventional schools, explicable in terms of these being part-time students who had previously dropped out of that system.

The DNFE programme too reaches large numbers of learners, more than NOS does. The total number of learners during the academic year 1998/99 was over 2.5 million. The figure ten years ago was a little over a half a million. DNFE has a long history of providing out of school education (20 years since its formal inception, but a lot longer under various initiatives), which might inform us of its success in reaching large numbers. DNFE too makes efforts to enrol members of the communities, who are socially, physically and geographically disadvantaged such as women, girls, street children, drug addicts, prisoners and hill tribes.

The Latin American Radiophonic schools also attract large number of learners. The ACPO programme in Columbia had, at any one time, 20,000 Radio Schools, with enrolment that normally ranged from 160,000 – 220,000 people (Fraser and Restrepo-Estrada, 1998). In its first 20 years, more than 2.25 million peasants participated in the Radio Schools. It had the most powerful broadcasting network in Colombia, and with its related studios and buildings scattered in the country. This network was putting out almost a hundred hours a week of educational programmes, and more than a hundred hours of general programmes, including news, music and sport. Its audience in early 1970s was calculated at 10 million people, almost half of the nation's population. This was a staggering achievement when one remembers the 90-watt home built transmitter in Sutatenza of only two decade earlier and the signalling system with white flags to confirm that it was working (*ibid*, p.155).

Where comparisons can be made, the programmes offering out-of-school education show lower graduation rates than that of the formal system. The pass rates in secondary and senior secondary levels at NOS in 1998 were 26 and 23 percent respectively. Figure for the formal system were 70 percent and 76 percent for the year 1994 (Gaba, 1997). At the DNFE completion rates for the year 1998 were 64 percent in functional literacy, 40 percent for primary, 26 percent for lower secondary and 23 for upper secondary. The higher pass rates for functional literacy maybe because the course is taught face-to-face. This kind of comparisons with the formal system, however, need to take on board the characteristics and backgrounds of students studying at a distance (Murphy, 1992). Students may study only part of the courses, and do not always sit for examinations. Distance study require discipline and commitment on the part of the students, and the time they can spend on studying on their own might be limited due to other commitments.

#### **4 OUT-OF-SCHOOL PROGRAMMES FOR ADULTS**

The audience of this category of programmes is adults and intermediaries such as extension agents and health workers. The curriculum provided in these programmes is mainly 'non-formal, life related subject matter' (Dodds and Edirisingha, forthcoming). What the people learn in these programmes is

often almost consciously not organised in prepared curricula but responsive to the needs of the learners as they arise and articulated. Learning opportunities provided could be put in under various sub-categories such as: 'home and community subjects such as health, family and civic responsibilities, general interest subjects such as religious and moral education, cultural studies, leisure and personal self-realisation studies; and income related, skill development, job-related concerns and studies' (*ibid*).

## **A brief account of programmes**

The methods and media to provide educational opportunities for adult populations are much more diverse than those discussed previously. Three programmes are presented below to illustrate how the different curricula are presented to different audiences.

### *West Africa: INADES-formation*

Founded by Jesuits in West Africa in 1962 to promote African development, INADES-formation provides educational opportunities for rural audiences, including farmers, since 1962. The idea of using correspondence courses to teach better farming practices to peasant farmers, often with modest levels of literacy, seems old fashioned and bizarre, a mismatch between educational technology and audience (Perraton, 2000). However, 'it was quite startling to arrive with INADES-formation staff, in village after village, often miles from a main road and often with no warning, to be met by students coming from their houses carrying their correspondence assignments ready to be marked' (Jenkins and Perraton, 1982, p.15). With its headquarters in Ivory Coast, currently INADAS-formation has its branches in seven francophone states and in Kenya and Tanzania.

INADAS-formation's provides a diverse educational programme; farmers, agricultural extension personnel, and women are some of its learners. The system works through a variety of means, including distance education. Its programmes include farming practices, women's participation in development, soil conservation, water supply and civic education. The main media and methods include correspondence lessons, assignments, seminars, magazines, and occasional broadcast radio. Students are recruited by INADES-formation field staff and carry out written assignments on which they get detailed responses from their tutors. It has retained its autonomy while collaborating with the governments and extension agencies. Since 1984 they began moving towards programmes of integrated rural development and, at the same time, modularising its courses to make them more flexible. Other changes include moving away from the associations historic concern to raise the capacity of individual farmers towards educational activities designed for the strengthening of groups within society (Perraton, 2000).

### *Pakistan: The Functional Education Project for Rural Areas in Pakistan (FEPPA)*

FEPPA was initiated as an experimental programme to address the learning needs of the rural people of Pakistan, who are predominantly poor, and with 62 percent adult illiteracy (Perraton, 2000). In Pakistan only about 10 percent of rural women can read. Based on extensive research and careful development of material, the Allama Iqbal Open University worked out a style of teaching, and group study led by villagers, that matched the village peoples needs. The experimental stage ran from 1982 to 1985 and has since institutionalised some of that work (*ibid*).

The main teaching methods and media include printed teaching material, illustrated flip charts, and audiocassettes, and group meetings led by group leaders. Field workers recruited and trained group leaders in the techniques of group study and supervised their work in the field. At the end of each session the group leader completed a feedback form that provided information for later sessions in the course for management and for evaluation. The project was reaching about 1500 learners and it was estimated that the same structure could reach about 5000 a year. It had some success in reaching its target audience of people with little formal education: 55 per cent of the learners were illiterate and 66

percent had either not gone to school or progresses no further than lower primary level. The evidence is consistent in showing that the project succeeded in establishing a viable and effective system for rural education. Its work had continued and has now become the responsibility of a university faculty of mass education (*ibid*).

### *Kenya: African Medical and Research Foundation (AMREF)*

This is a programme that attempts to address the needs of the learners by raising the effectiveness of intermediaries, such as extension agents and health workers agents who are working with them. The Distance Education Unit of AMREF provides in-service education for health workers in Kenya. The distance education unit has developed a programme with correspondence lessons, audiocassettes, a weekly radio session called 'Health is life' and practical demonstrations to support its other teaching methods. The programme grew from a pilot of 100 students in 1980 to reached 6000 by 1995 with 4090 active learners, all of them paramedical health workers. The AMREF project is unusual in using distance education for the in-service training of field workers. Although there is extensive experience of supporting schoolteachers at a distance, far fewer projects have used the same method for health workers or extension agents (Perraton, 2000).

## **5 GUIDE FOR GOOD PRACTICE IN RELATION TO EFFECTIVENESS AND SUSTAINABILITY**

The programmes discussed above have been functioning for at least a decade or more. Many projects, using media for education both in and out of school in developing countries, however, have died or stagnated before they reached the stage of full-scale implementation. There have been too many examples of the same historical cycle: 'great enthusiasm, early research support, later research showing failure and the eventual discarding of the technology' (Cuban, 1976). The high-profile ETV programmes and most of the IRI programmes are illustrations of this cycle. Many of the adult non-formal programmes discussed show evidence of much longer survival though not of nation-wide expansion. Their survival or expansion, however, does not seem to correlate to their technical effectiveness. The evidence gathered point towards ten factors that have a bearing on the success and the sustainability of programmes: political context and support, integration into the mainstream education, cost of the programme, funding regime, independence and flexibility of the curriculum, access to broadcasting infrastructure, quality of the learner support system, collaboration with other government and non government organisations, and availability of existing structures. (Note: the analysis presented here is an extract from Dodds and Edirisingha, forthcoming)

### **Political context and support**

There is convincing evidence that political support is a crucial factor in long-term sustainability and growth to scale. Most of the IRI projects have failed because they were unable to attract political support to ensure national funding and integration into national education structures as they tried to pass from USAID-funded and expatriate-managed projects into national programmes. The South African IRI project, which was nationalised in its leadership much earlier in its life and has been able to diversify its funding base may hopefully prove to be an exception. The ACPO Radiophonic schools programme, after a sustained period of dramatic success, with both church and governmental support, died after 40 years, when the church and the politicians turned against it (Fraser and Restrepo-Estrada, 1998). Two programmes, which seem to continue to command political support and to have survived and grown to scale are the DNFE programme in Thailand and the Indian NOS. Both have had firm national political support from their inception. Political support, or the political will to make resources available, is the main factor determining effectiveness and sustainability in adult and non-formal programmes using open learning media. Many of the programmes surveyed by Dodds (1996) have survived long after the end of the pilot projects but few have achieved large-scale implementation and therefore large-scale social and economic impact.

## **Integration into mainstream education**

Many programmes, particularly those started with external funding, fail to pay adequate attention during the pilot stages to the issue of institutionalisation and as a consequence they are poorly integrated into the administrative and professional fabric of the educational system (Dock, 1999). The IRI project in Kenya, for example, failed due to a lack of consultation with the MOE on how to make the project's and the MOE's goals consistent (Helwig, Bosch and Dock, 1992). The Indian NOS, Thailand DNFE, Mexican Telesecundaria, and Indonesian Open Schools are examples of healthy integration into the national mainstream educational systems. Non-formal education programmes, however, as the name implies, are not dependent on integration into the formal education mainstream. They depend on the recognition by the target audience, education officials and the politicians, as well as the general public, that they are educationally and socially important and effective. Their survival, however, does depend on their incorporation into the regular programmes of a permanent institution, even though their effectiveness often depends on inter-institutional co-operation.

## **Cost of the programme**

The costs of such programmes clearly vary according to the nature of the programme. In-school programmes, which set out to improve the quality of the learning, are obviously add-on costs. The Educational Television programmes appear to have been too expensive for the national governments to take over when external funds dried up. The same was claimed for the IRI programmes though it would appear that political and integration considerations probably outweighed cost concerns in most cases. The costs of running out-of-school programmes, whether for mixed audiences as school equivalency or non-formal programmes for adults are different. They are not add-on costs except to the national budget. The evidence reviewed suggests that they are usually significantly cheaper than their conventional alternatives, though the cost per student will vary with the scale of the audience and therefore with the coverage of the programme. They are however programmes that have to be paid for: the more students covered the bigger the budget required even if the cost per student comes down. It comes back to political will: only if they are considered politically important will sufficient funding be found for them.

## **Funding regime**

Programmes can operate on a mixture of at least four kinds of funding regimes: external grants, government budget, fees charged to students and private sponsorship. Many media projects, as we have seen, start their lives on external grants, particularly at pilot project stage. This is one of their major constraints. It appears vital that from the outset there is local financial commitment and investment and a clearly stated and agreed programme for the replacement of external by local funds. These local funds can, as shown in the Indian NOS and the Thailand DNFE, be a mixture of government subsidy and student fees. The latter, however, raise the question of equity: the programmes are aimed at those students who often for economic reasons have not been able to use the formal system. NOS and DNFE have found ways of admitting students who cannot afford the fees. These same points apply to non-formal programmes for adults: those that have survived are those which, from an early stage, were able to match and eventually replace external funds with local budgets. One important difference lies in their ability to charge economic student fees. Such programmes, like basic primary schools, must continue to rely heavily on government subsidies. If government or international agencies wish to insist on student funding of such programmes they cannot survive on any scale in developing countries.

## **Independence and flexibility of organisation**

Many of the organisations we have studied are parts of government ministries. They must operate within the guidelines, regulations and administrative structures of their parent ministry. Such bodies

have little freedom or self-control in matters of staffing, programme initiatives or finance. Decisions are taken according to criteria and by people, which are not sensitive or informed by knowledge of the needs and characteristics of open learning. This often constrains their development. Organisations such as the NOS and the DNFE have flourished because in different ways they have been able to enjoy freedom of operation and internal self-management. Flexibility is probably the keynote of successful non-formal education programmes. Flexibility and innovation almost by definition require a high degree of autonomy in day-to-day management. Most of the surviving and successful NFE programmes we have surveyed are run by parastatal or NGOs.

### **Flexibility of the curriculum**

There are three kinds of curricula: those which follow the formal school curricula exactly; those which combine school curricula with subjects and approaches specially designed for their out-of-school audiences and those which are almost entirely non-formal. Those which are tied to the school curricula have been criticised either for giving their students a programme irrelevant to their lives or for qualifying them to leave the rural areas where they live and are needed for urban areas where they have great difficulty getting jobs. Organisations like the NOS and the DNFE appear to have successfully combined formal, vocational and life-enrichment curricular concerns to allow their students to receive equivalency recognition with formal school products with preparation for living and working successfully in their own environments. The curricula of adult NFE programmes adhere closest to the third category. Some NFE purists would see the absence of a structured curriculum as a pre-requisite for non-formal definition. We believe that flexibility and the ability to respond to the immediate learning needs of the audience are a major strength of non-formal education. The challenge is to provide this flexibility through open learning media and to give the students something that they and their communities recognise as worthwhile.

### **Access to broadcasting infrastructure**

Broadcasting appears to be central to most ODL basic education systems. Clearly to date, radio is the lead medium. Access to the broadcasting facilities is therefore crucial. There are no clear guidelines as to whether the educational body should own its own facilities or can successfully use public broadcasting facilities. Where public broadcasting is run by a government ministry other than education it can be difficult to get together the expertise on the side of the educators and the recognition of educational priorities on the side of the broadcasters. On the other hand few of the agencies we have examined running basic education can justify or manage the expenditure in owning and maintaining their own transmission facilities. There are examples such as the DNFE in Thailand where a strong working agreement was in place between the educational and the public broadcasting institutions to ensure proper resources were available to the programme. Insofar as education, including adult education, is the responsibility of the state to provide to its citizens, it is logical to assume that a tool as powerful as radio should be made available at a subsidised rate to education bodies. This includes both access to the airwaves and to the facilities and expertise to utilise the medium to its best effect.

### **Quality of learner support system**

Evidence suggests that the quality of the learner support has a strong effect on the pass rates. The quality of the teachers and supervisors is the single most important factor. It is also clear that younger learners are more dependent than mature students on such support. Quality support, however, depends on training for the supervisors or tutors, especially in tutoring distance students. While the nature of the support and the ways of delivering it might differ for non-formal education, the need for it does not.

## Collaboration with other government and non-government organisations

A centralised organisation has limited capacity to reach distance students nationally and to reach the remote corners of the country, especially with quality support services such as we have just noted. Programmes which are successful in reaching large numbers of learners, especially those from educationally disadvantaged communities, are those which forge successful partnerships with other bodies, including NGOs. Such collaboration as we have seen is an essential feature of non-formal education programmes. If adult non-formal programmes are to use open and distance learning effectively and with quality over extended periods of time and to achieve maximum outreach, such collaboration is an essential feature: structures to ensure it works must be established.

### Existing structures

This is the availability of existing facilities and expertise so that the education programme can depend on, and build on those structures. For example, ACPO and other radio schools have used the existing very existing parish system of the Catholic Church to promote their educational work (McAnany, 1976). In addition to the motivated monitors, there were the local parish priests whose support contributed to the success of spreading the radio schools in many Latin American countries. A parallel situation could be observed in Thailand, where the extensive network of Buddhist temples helps the work of the DNFE's work there. A significant proportion of learning centres is based in village temples, or is supported by the temples in various ways. Also a lot of the learning centres uses the premises of the village centres and other existing local building. In India, the NOS is able to depend on the existing schools to hold its weekly study centres, and the government teachers to work as tutors for a small fee.

## 4 CONCLUSIONS

We have presented techniques and organisational structures that have stood the test of time. These have been found to be effective to improve in-school basic education for children, to increase the scope and effectiveness of out-of-school provision for children and mixed-age audiences and to provide much larger scale adult non-formal education programmes. The costs are reasonable by comparison with their formal school equivalents. 'Even with the old-fashioned techniques of print, cassettes, flipchart and radio, results have been achieved in varied settings for literate and non-literate which confirms that methodology is not a problem. The combination of group study with prepared materials works in practice as predicted in theory. A developed body of expertise, reported in the literature, means that we know how to do it, and how to do it more effectively than we used to' (Perraton, 2000). What is needed is the political will of governments, both as direct providers and international funders, and policy makers, to initiate and fund open and distance learning approaches to clear the back log of education for all; and while doing so, to consider carefully the factors contributing to the sustainability of such programmes.

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