Chapter 8

OPEN SCHOOLING

Margaret Haughey, Elizabeth Murphy, and Bill Muirhead

The provision of schooling to students at a distance has had a multitude of titles. Erdos (1967) defined correspondence education as a "method of teaching in which the teacher bears the responsibility of imparting knowledge and skill to a student who does not receive instruction orally, but who studies in a place and a time determined by his individual circumstances" (p. 10). This definition made sense when use of technologies such as audio tapes, radio broadcasts, or telephones in education was uncommon. Today, we would define distance education as involving mediated learning opportunities, whether available in synchronous or asynchronous time, individually or in groups, but involving a formal system of student support. Correspondence schooling depended on print and the postal service. Today, distance education is likely to involve a variety of technologies but the intent is the same: to provide through alternate means educational opportunities of similar or better quality than those proposed for a site-based programme. With the advent of the Internet, it is sometimes referred to as online schooling.

The term "open schooling" has a much shorter history. Open schooling refers to schooling which "concerns using alternative and, usually, less resource-based approaches which characterize distance education methods and open learning, to deliver basic education and training (Phillips, 1994, p. 149). Openness usually refers to the removal of barriers such as age, entry qualifications, ability to pay, and geography. Sometimes open schooling is provided through virtual schools where all students are studying online at a distance, while other providers are conventional schools which can provide some open schooling to selected students. The combinations and terms continue to proliferate and so while we have called the chapter "open schooling", the general intent is to encompass all the variations of open and distance learning".

While much of the original correspondence education literature focused on adult education, the focus in this chapter is on the provision of educational opportunities to school-aged children. There has been no single model of correspondence or distance education for children's schooling but, like adult education, the models which were developed had to fit within the parallel context of on-site provision and were judged in comparison to it.

Of all the open schooling initiatives occurring around the world, we have chosen to focus on the following cases: correspondence and distance schooling in Australia and Canada, the open school movement in India, developments in sub-Saharan Africa, and schooling in conflict situations. We believe that they provide a rich tapestry of the variety of contexts and ingenuity of distance educators in their search to solve the challenges of providing educational opportunities through open schooling. We begin with a historical overview of the development of open schooling.

8.1 THE DEVELOPMENT OF OPEN SCHOOLING

In general, while open schooling began as a way to provide education to children who were without access to schools, the rationale for its provision has depended on the times and the context. In both Australia and Canada, at the beginning of the last century, parental concerns of those living in isolated and remote rural areas who could not afford to hire a personal tutor or send their children to boarding schools led to the development of government correspondence programmes. In both countries, this model of school provision spread rapidly as new settlements in sparsely populated areas outpaced the capacity of the local governments to provide schools.

In some situations, the development of open schooling became a necessity when regular schooling was temporarily unavailable. This happened through widespread sickness — such as the polio outbreak in New Brunswick, Canada (1939), and the influenza epidemic in New Zealand (1922) — that closed down all schools in the province or country and provided the impetus for the provision of what was then termed "correspondence education".

The disruptions of war have also contributed to enrolments in what was then called "correspondence education". In Canada, all the provincial correspondence education institutions combined resources to provide a complete secondary education curriculum to Canadian soldiers serving in the Second World War. In Europe, as Daniel notes (2006, p. 2), "the largest open school outside the Commonwealth, France's Centre National d'Enseignement a Distance (CNED) was created to serve the thousands of French children who were evacuated from the cities at the outbreak of World War II". In various European countries, such schools continued in the post-war reconstruction era as countries sought to provide vocational education for civilians and schooling for children whose lives had been disrupted by war. Glatter, in his 1969 article on correspondence education in four European countries (The Netherlands, West and East Germany, and France), mentions the CNED (then called Centre National de Tele-Enseignement) as having 10,000 students in 1950-1951 and an enrolment of 124,701 in 1966-1967. Given the disruption of schooling, not only in France, but all over Europe, the high enrolment figures include adults as well as school children, some taking school-level education while others were registered in post-secondary education; for example, The Netherlands (723,000 in 1960), West Germany (Peters estimated it was approximately 300,000 in 1965), and East Germany (37% of all technical college and 25% of all university students).

The next major development of distance schooling coincided with the economic and social development movements of the late 1960s in Africa, Mexico, and India. In these initiatives, the emphasis was often on teacher-training schemes which used learning centres to help encourage the learners to study together without the aid of a teacher. During the 1980s, the emphasis was on secondary education and the need to provide greater access to selected secondary education subjects. Many of these projects used communications technologies, radio most often, but sometimes television, to reach students and a general audience simultaneously. In the 1990s, the focus moved to primary education provided through radio and print to students in their homes without any face-to-face interaction (Brophy, 2003). Now, the pendulum has swung again with a renewed emphasis on secondary education and on out-of-school youth, the latter often the result of HIV/AIDS, poverty, and conflict. Despite a general consensus that schooling is important, UNESCO noted that in 2003 over 104 million school-aged children were not in school. The reasons include "economic, social and cultural barriers, ill health, religion, accessibility, political conflict and gender discrimination" (Fentiman, 2004, p. 1). Distance education is seen as providing an option for these children, particularly those in conflict situations.

8.2 OPEN SCHOOLING IN AUSTRALIA

Stacey (2005) identified the first distance education school programme in Australia as occurring for secondary school students in 1909 and for elementary students in 1914, the latter in response to a parent's request from Beech Forest in the Otway mountains, west of Melbourne. The best-known correspondence schools are the Australian Schools of the Air. They had their roots in the first government correspondence schools developed in response to settlers' requests for lessons for their children. Prior to the correspondence schools, a number of states had appointed "travelling" teachers who were required to travel throughout their districts visiting children at least four times a year if possible. Only men were appointed and the transition from travelling teachers to a more centralized operation came about partly due to the shortage of males during and after the First World War (Longreach School, n.d.). Teachers in these schools developed lessons which were mailed to students on a weekly basis and returned for correction. For educational resources, students were dependent on any additional materials available in their homes. Teachers sought various ways to provide supplementary information to their students. In Western Australia, in 1940, the Correspondence School Head Clarence Eakins built on the provision of general school broadcasts and developed radio broadcasts which augmented the school curriculum, provided students with the sound of their teachers' voices, and content related directly to their written work.

Schools of the Air are synonymous with the use of radio broadcasts in education. They spearheaded the use of two-way radio educational broadcasts and the first one began broadcasting in 1951 from the Royal Flying Doctor Base in Alice Springs, Northern Territory (NT). The Western Australia School opened in 1959. By 1968, there were thirteen schools throughout Australia. Initially, the school broadcasts were provided by teachers in a local school near the Flying Doctors' air base. The lessons were broadcast to those students taking correspondence courses from the state's correspondence

school. The role of the School of the Air teacher was to supplement the work of the Correspondence School teacher. As Margaret Hartley, the teacher at SOTA noted, "SOTA teachers tried to create a classroom atmosphere and provide standards by which individual students could compare their efforts with others. ...[and] to give prompt help with individual problems identified by the child and the home tutor" (Longreach School, n.d.). Attempts were made to link the broadcasts more closely to the correspondence lessons and eventually, in 1974, the Alice Spring School of the Air took over the correspondence programmes for all Central Australia children. Within the next two decades (1976-1996), in the various Australian states, state "radio" school services and correspondence schools were amalgamated and decentralized and multiple distance education centres or schools were established. This resulted partly from the concerns of parents who wanted a more integrated approach to their children's education and school sites closer to their homes since many children were unable to participate in extra-curricular activities due to long distances, inadequate road conditions, poor weather, and financial difficulties.

In Queensland, in 1987, two committees investigating the needs of correspondence students recommended the reorganization of distance education provision and the redevelopment of curriculum materials, some of which were over 30 years old. Parents could now register their children in the closest school of distance education which provided a wide range of services formerly provided by the Schools of the Air. These services included "marking of papers, individualizing papers to meet needs of students, conducting on-air lessons, home visits, mini-schools, home tutor sessions and seminars, camps, sports days and activity days" (Longreach School, n.d.). Teachers from the schools visit the homes on a yearly basis. Each of these schools provides educational services to approximately 250 students living in an area in excess of 300,000 sq. km. The distance education materials used by the students were developed by a Support Unit that was amalgamated with the Open Access unit and, in 2005, reorganized into the Distance Learning Unit "with responsibility for developing curriculum in a digital format" (Longreach School, nd).

In Western Australia, the Distance Education (DE) Centre was formed in 1983 from the amalgamation of the Correspondence School, the Early Childhood scheme, and the Isolated Students Matriculation scheme to provide distance education materials for K-12 students. Subsequently, in 1995, the DE Centre and the five Schools of the Air, which together catered for approximately 2,500 students, were combined to enhance the quality of services which could be provided. As conditions allowed, radio was replaced by satellite broadcasts, and video-conferencing and laptop computers were added to the technologies used in working with home-based students. These schools vary in programs using text-based materials where students work on weekly lessons with their home tutor (usually their mother) which are posted back to the school for marking by the teacher and those with the addition of a radio or satellite broadcast, audio-graphics system where regular lessons are broadcast to students at set time. Although the majority of children would have been living on isolated properties in the outback, groups from other areas were also added. These included children with physical handicaps and those convalescing, students whose parents moved frequently, children living overseas temporarily, children who wanted to pick up some subjects to complete their education,

Aboriginal children in pastoral areas and in Mission or small rural schools, and, more recently, those whose parents chose not to have them attend a school building.

In an insightful account of one Queensland family's distance education experience, Green (2006) identifies the importance of the home tutor's personal educational biography, the pressures of the daily chores required on a ranching property, and how the home tutor, in this case the mother, brought her past experiences and her daily routines to bear on her obligations as a home tutor. For this mother, the distance education lessons were "one more chore to be done" (p. 42). The materials "largely set the pace and tone of [her] home tutoring activities" and failed to "rescue school learning activities from becoming simply a chore" for both the mother and the children (p. 42). Nonetheless, the two children preferred to be tutored by their mother than by any of the visiting teachers they had met. Her interactions with the children in educating them about many of the natural happenings in their everyday lives on the property provided the basic meaningfulness for their tutorial time together.

8.3 OPEN SCHOOLING IN CANADA

In Canada, open schooling for school children began in 1919 in response to a British Columbia rancher's request for lessons for his children (Haughey, 1990). The development of the provincial correspondence schools fits a pattern very similar to that in Australia. Programmes were developed and lessons organized using print and mail. By 1946 almost all Canadian provinces had a provincial correspondence schooling system (McKinnon, 1986). Gradually, the focus of correspondence education shifted from primary to secondary education. The post-war years brought a demand for vocational trades and skills. The increase in the number of elementary and secondary schools meant that developments in correspondence education focused on post-secondary and adult learners. As a result, funding for primary and secondary school correspondence education declined in comparison to its classroom-based alternative.

The revitalization of K-12 correspondence education in the 1970s in the US and Canada resulted from economic and curricular concerns arising from the population decline in rural communities and the demographic shift to the cities (Williams et al., 1988). Stephens (1986) noted that over 77 percent of United States school districts enrolled fewer than 2,500 students. Barker (1986) listed the reasons for this migration as including the "farm crisis", the drop in the price of oil, fewer teachers entering the profession, higher graduation requirements, and more diverse curricula. In response, schools were "turning to technology to help broaden curricular offerings in light of low student enrolments and increasing per-pupil cost of programs, facilities, and certified personnel" (p. 5). A similar trend occurred in Canada in the 1980s. During the previous 20 years, social trends in Canada showed a declining birth rate, a move away from farming, increasing urbanization, modernization of farming practices, depression in the agriculture industry, and increased graduation requirements. These trends resulted in increased urbanization because cities were seen as providing better educational and employment opportunities. As the tax base shifted, the survival of rural communities became an increasingly

important concern. Other concerns were the lack of specialist teachers in rural schools and the relatively high numbers of secondary students who did not complete high school.

Today, in many provinces across Canada the move to greater urbanization and the decline in rural populations continue. At the same time, the increasing availability of the Internet continues to change the provision of schooling for urban students. It has also meant that options especially for children in situations which are truly remote have received new emphasis. Schools in remote Aboriginal communities in Northern Ontario have used the Internet to develop and share materials and resources in the local language, thereby helping to sustain the cultural context of schooling. Teachers have cooperated in the provision of online courses thereby sharing their expertise among the many small schools in the region. Given Canada's climatic challenges and vast land mass it is likely that distance education will always be a part of its educational provision. The cases of Alberta and Newfoundland and Labrador illustrate the essential role of this form of education.

8.3.1 Open Schooling in Alberta

In Alberta, a new form of correspondence education emerged as a way to provide the desired high quality education to families who chose to remain in rural communities. Projects undertaken at this time include *Distance Learning in Small Schools,* which used local tutor-markers, fax, and audio-conferencing to provide better student support and faster feedback to the distance education students taking correspondence courses in the thirteen pilot schools. A subsequent project used competency-based tests from a computer-managed database system and audio-conferencing with audio-graphics to enhance the provision of mathematics in small schools. The success of these projects led to the development of a consortia of school districts that would be responsible for the provision of all aspects except course development associated with distance education provision to students in their own jurisdictions (Hough, 1989). Previously, in-school students had identified loss of interest and lack of frequent feedback as their reasons for abandoning correspondence courses (Balay, 1978). It is not surprising that the use of local tutors, a faster turnaround time, use of fax machines, active supervisors, and more support led to a dramatic decline in the number of student dropouts (Hough, 1989).

These programmes focused on students who could not access specialist teachers or appropriate courses. Less emphasis was placed on correspondence education for students who did not attend a school at all since the numbers of these students had declined. The numbers of those taking correspondence courses at the elementary level between 1987 and 1990 ranged from about 450 in Alberta, approximately 1,000 in British Columbia, to only about seventy students in Manitoba (Haughey, 1990). Two circumstances radically changed this scenario in Alberta. The first resulted from the impact of an economic downturn in the 1990s when 141 school jurisdictions were amalgamated into sixty-three, and each new jurisdiction had to rationalize costs by closing small schools. Concerns about the long distances elementary children had to travel daily by bus during the winter months led to a sharp rise in the number of parents who wanted to home-school their children. Changes in the provincial curriculum language arts programmes raised

further concerns for some parents who subsequently demanded more control over their children's education.

> As a result, provincial legislation was changed to allow parents to undertake the education of their children under the general supervision of a willing school board....In addition funding was restructured to reflect this change and parents could offset the costs of instructional materials and curriculum guides against a provincially designated amount for each student.
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> (Haughey and Muirhead, 2004, p. 52)

However, many parents did not want to develop lessons and instead sought help from their local school district or the provincial Distance Learning Centre.

The second circumstance that changed in Alberta was the development of the Internet and the World Wide Web. The new technology gave students the opportunity to stay at home and yet participate in classes given by the local school teachers over the Internet. Approximately nineteen jurisdictions developed "virtual" school programmes, some designed to serve students in their own jurisdiction while others served students throughout Alberta and some registered international students. The programme enrolments varied from about 250 to over 2,000 students. Virtual schooling provided students with flexibility in attendance and with a more interactive environment than was initially available through home-schooling or correspondence lessons. Today, these schools use course management software such as WebCT or Moodle. The course materials are posted on the website and, depending on the school, students can work independently or in a group. Many schools use an interactive synchronous audio-conferencing groupware which provides a whiteboard and small group spaces for interaction. Teachers have developed their own lessons or work with materials developed by the Alberta Distance Learning Centre.

The former correspondence school, now called the Distance Learning Centre, has also changed. It began using e-mail in 1995, and by 1997 when it was placed under a school jurisdiction more than 100 students were registered in its virtual school programme. Today, the school works with students in isolated areas and those who choose to home-school through distance learning. In addition, it continues to develop courses which students can access independently and in print as well as online and to partner with school jurisdictions to make these materials available to their students and teachers. The government has, in cooperation with federal and provincial initiatives, implemented SuperNet, which provides a broadband network to most small communities around the province. Falling costs for hardware at home and within schools have made the Internet the vehicle for flexible learning and new combinations of learning environments.

8.3.2 Open Schooling in Newfoundland and Labrador

While the Alberta scenario shares many similarities with other jurisdictions across Canada, each province developed models of open schooling provision which fitted the provincial geography and educational policies. There is a range of pedagogical options from virtual schools with their own teachers and the work completed by students most

often at home, to non-specialist teachers using distance education materials in a classroom setting or to in-school students working on materials at their own pace. The different models were all designed to extend the options available to secondary students in particular. The present provision of open schooling in Newfoundland provides one such example.

Distance education in Newfoundland and Labrador has evolved out of extreme demographic, socio-economic, and geographic conditions. The population of the province in 2005 was only 512,930 (Government of Newfoundland and Labrador, 2005a). However, this population is in decline as evidenced by a Statistics Canada (2001) survey, which revealed that between 1996 and 2001 about 47,100 people left the province as a result of a decrease in the importance of resource-based industries such as fishing, mining, and forestry. The remaining population is dispersed primarily in rural and coastal areas over a land mass of 405,720 sq. km or the equivalent of one and three quarter times the size of Great Britain.

Not surprisingly, of a total of 303 schools, 65 percent (198) are classified as rural and 35 percent (105) as urban (Government of Newfoundland and Labrador, 2005b). In 2003-2004, 14.1 percent of schools had enrolments of fewer than fifty students, and 30.5 percent had enrolments of 50-99 students (Government of Newfoundland and Labrador, 2004). Many of these schools have multi-grade, multi-age classrooms. Numerous schools exist with populations of under 100 students with some having enrolments as low as thirty-five students from grade K-12 (see Government of Newfoundland and Labrador, 2005c). These schools may have difficulty recruiting teachers in areas such as Maths, Science, and French (Dibbon and Sheppard, 2001), or may simply have enrolments too low to justify the hiring of a teacher in a specialty area. It is primarily as a result of these conditions and factors that distance education has developed in this province.

Distance education for rural high school students was first introduced by the provincial Department of Education in 1988 in response to the ***Small Schools*** report (see Government of Newfoundland and Labrador, 1987). The first course was Advanced Mathematics and other Mathematics and Physics courses followed. Courses were delivered through an audio-teleconferencing system developed by Memorial University's Telemedicine Centre (Telemedicine/TETRA, 2002), as well as a telewriter system and fax (Government of Newfoundland and Labrador, 1992). From one course with thirty-six enrolments in thirteen schools in 1988, delivery expanded to eleven courses in seventy schools with approximately 900 course enrolments in Advanced Mathematics, Physics, Chemistry, and French in 1999 (Brown et al., 2000).

In 2000, the Centre for Distance Learning and Innovation (CDLI) was created by the Department of Education upon the recommendations of the report of the Ministerial Panel on Educational Delivery in the Classroom (see Government of Newfoundland and Labrador, 2000). In the following year, CDLI implemented ten Web-based high school courses through digital intranets in partnership with the Centre for Telelearning and Rural Education (Coffin and Stevens, 2002). Whereas the traditional distance education model tended to target higher-ability learners in rural schools, CDLI's model of e-learning

was designed for both rural and urban learners (Barbour and Mulcahy, 2004). The three main mandates of CDLI are online distance education, online teacher professional development, and the integration of e-learning in the learning environment (CDLI, 2005). CDLI e-learners attend conventional face-to-face schools but supplement their course offerings with virtual classes.

In 2005-2006, CDLI employed twenty-eight teachers and offered thirty-two Web-based courses with approximately 1,000 course enrolments in ninety-seven schools across the province (CDLI, 2005). Courses are designed according to provincial curriculum guidelines and rely on asynchronous modes of communication using WebCTTM with a percentage of synchronous communication conducted using Elluminate *LiveTM.* This audio-graphic learning environment includes various collaborative tools, including Class List Display, Direct Messaging, White Board, two-way audio, and Graphing Calculator. CDLI works with two categories of teachers: e-teachers are subject specialists who facilitate learning at a distance; m-teachers or m-teams are available for student consultation on site. They are not responsible for content delivery in the subject area and, instead, fulfill technical, coaching, and administrative roles.

Besides regular curricular offerings, CDLI provides additional support for e-learners. E-tutors are assigned to each e-learning site for troubleshooting equipment, tutoring, and presenting information about CDLI to junior high students. High school learners preparing to write public examinations can avail of free online tutoring from post-secondary students, and CDLI has created multimedia learning tools for supplementary study. Also available is a Guidance Room where CDLI students can contact an e-counsellor and access career planning and other resources. They can also attend online career presentations weekly during lunch hours. Other opportunities available to CDLI students include a variety of extracurricular opportunities. As an example, in 2003 and 2004, two Science students were selected in the Canadian Genetic Diseases Network national competition for placements during spring break working with scientists and their lab teams in molecular biology research labs. In 2004, twenty-four learners from eleven communities taking CDLI French courses travelled with two French teachers to Quebec. In 2005, forty-three learners (seven teams) from two districts participated online in the first CDLI Senior Math League. Later in the year, two teams of learners from different communities participated in Senior Math League Provincials competing against other school teams from across the province.

The CDLI also offers support to teachers and encourages parental involvement. Professional development includes Web-based opportunities for teacher professional development through online collaboration. M-team training sessions are also organized. Some teachers have had the opportunity to meet with parents and students face-to-face. Internships are available for university Education students. Parents can attend orientation meetings where they are introduced to the CDLI learning environment.

The successes of CDLI have been accompanied by a need to face a variety of challenges and issues. Technical issues include the spread of viruses and spam through e-mail; mail-box quota issues; system outages; Internet performance issues; bandwidth access; the need to constantly update software and equipment at learning sites; and the

provision of adequate equipment and technological support to instructors, learners, and schools. Other issues relate to scheduling across four districts and ninety-seven schools in a province with two time zones. Learners at the various sites may have different timetables, calendars, and events. District schedules may change because of professional development dates, school events, or weather closures. Because teachers work across districts, the logistics of coordinating schedules, professional development meetings, and teacher-leaves sometimes presents challenges. Other issues include supervision and monitoring; exam security and confidentiality; and access to special materials and equipment for courses not offered at schools (e.g. books, headphones, and lab supplies). Another challenge relates to the development of course materials and learning objects (Barbour, 2006). In this regard, CDLI contracts out the development of some course materials through a bidding process. Other issues relate to recruiting professionals with the required expertise and technological knowledge; providing relevant training and professional development opportunities; and finding substitutes with the required technical expertise.

8.4 OPEN SCHOOLING IN INDIA

While open schooling in Australia and Canada began as a means to provide education for children who could not access conventional schools, it began in India in the mid-1960s as a means to help students from private schools perform better on the secondary-school examinations. As Sujatha (2002) notes, "it was a means to improve their academic performance" (p. 41). A number of states (i.e. Delhi, Rajasthan, Madhya Pradesh, Orissa, Uttar Pradesh) followed the advice of the Boards of Secondary Education and began correspondence courses. These materials followed the examination syllabus programmes of these states. Despite the rapid expansion in numbers and capacity of schools, the even greater numbers of students without access to education continued to lead to yet greater inequalities. This situation was exacerbated by the large number of communities without access to any schooling. The government-appointed working group, under the National Council for Educational Research and Training, examined the feasibility of an alternative system of schooling and proposed that an Open School be established catering to those over fourteen years of age. Over the next 4 years, the topic was debated and discussed in government and educational circles and, following the discussions generated at the International Conference for Correspondence Education (now ICDE) meeting in Delhi in 1978, the government gave approval for the Open School Project. It registered its first 1,672 students in May 1981 (Sujatha, 2002, p. 45). The Open School Project provided a parallel system to conventional education and targeted out-of-school learners, especially women, lower castes, the scheduled tribes, and those with little or no income. It used an open-entry system for anyone over the age of fourteen, and provided instruction in both Hindi and English. The courses were bridging courses designed to help student obtain the foundations acquired by a successful conventional schooling, and secondary education courses with a focus on vocational education which were equivalent to those in the conventional school.

A resource-centre model was developed where students came to register, obtain materials, and examination fees paid. Singh (1988) in his research on the Open School in Delhi found that these centres increased student attendance and student—tutor interaction and saved on costs associated with administration of materials and forms. By 1989, over

40,000 students were enrolled in the Open School Project (Sujatha, 2002) and a number of states who had initially developed correspondence education established their own Open Schools although some continued the examination syllabi while others adopted the Open School curriculum.

This move to form state Open Schools was accelerated following the 1986 National Policy on Education. This policy strongly supported distance education as a means to meet the enormous needs for education at both secondary and tertiary levels. As a result, the Open School project was amalgamated into a new National Open School (NOS) under the Ministry of Human Resource Development. The NOS was able to build on the foundational architecture for administration and curriculum development established by the Open School Project, and immediately began to expand the senior secondary course offerings. It continued the offering of bridging courses (equivalent to 8, 10, and 12 years of secondary education), vocational education, and life enrichment courses, and added an Open Basic Education component. Based on the objective of helping to achieve national literacy standards, the latter programme is for out-of-school 6-14-year-olds and adult learners. Like its tertiary distance education partners, the NOS uses a network of study centres in accredited institutions. NOS is responsible for providing the up-to-date curriculum materials and examinations. Its use of Information and Communication Technologies (ICTs) is increasing through the provision of on-demand examinations, published lists of examination results, and digitized access to library materials through its website. Students register at the network of regional centres throughout India, attend weekend classes, and obtain tutor assistance through a number of accredited institutions which provide premises, organize tutorial staff, and ensure student support. In 1999-2000, according to the NOS website (http://www.nos.org/enroltrend.htm), about 147,000 students were enrolled in the NOS. While these students come from almost all the Indian states, the small numbers in some areas may reflect the rise of state Open Schools and the importance of the state or local language which the state schools use. Raising awareness of the school and its possibilities continues to be an important concern for NOS.

By 2002, there were eleven Open Schools functioning under their respective state governments. As a result, NOS provided consultancy and quality assurance services to state Open Schools in addition to running schools of its own. In 1999, a National Consortium of Open Schooling was formed under the leadership of NOS to help support this network and encourage links with the public system. In 1998-1999, there were 318,000 students enrolled in these state Open Schools, which was still only a small fraction compared to the 11.9 million students in conventional secondary schools (Sujatha, 2002, p. 51). To reflect its work in assisting the provision and quality of open schooling in state Open Schools, NOS's title was changed to the National Institute of Open Schooling (NIOS) in July, 2002.

The state Open Schools have different operational structures: some are autonomous institutions while others operate as an arm of a government department or the State Board of Education. This has implications for their operation (Mishra, 2005). They have different priorities: some focus on Open Basic Schooling, while others have only secondary or vocational schooling. Some serve children while others serve only adult learners. Those linked to Boards of Education are more likely to have regulations that follow those in conventional schooling such as requiring students to take all five exam-

inations in a single year, while NIOS, for example, provides examinations on demand and encourages students to study for only one to three examinations at a time.

The NIOS is an autonomous body operating under the government of India; in this regard, it is not unlike Indira Gandhi National Open University in having a monitoring and coordinating as well as a collaborative standard-setting role as Chair of the National Council of Open Schooling. NIOS also provides the headquarters for the Association of Open Schools of the Commonwealth, which receives support from the Commonwealth of Learning (COL). The National Institute's role is to coordinate services among the participating schools, particularly in personnel development and teacher training, provide coordination and consultation services, promote research and development, and help ensure quality standards. NIOS also coordinates the International Centre for Training in Open Schooling (ICTOS), which is supported by COL and UNESCO. The major function of NIOS is to aid other countries in capacity-building for developing open schools, and NIOS is beginning to offer a Certificate and Diploma in Open Schooling to aid in developing teachers' skills.

In a review of open schooling in India for UNESCO, Sujatha (2002) observed that research on the effectiveness of the processes and on student and tutor satisfaction was still spotty with most studies targeted at a small percentage of the entire enterprise. Sujatha noted that "the research on different aspects of NOS is not only limited, but also does not provide a wide cross-section of the country. Therefore, it is difficult to make generalizations" (p. 152). Recognizing this issue, the Association of Open Schools of the Commonwealth now funds the *Journal of Open Schooling,* devoted to research in this area. Mishra (2006) recently completed a study on gender and open schooling using data from NIOS. She noted that NIOS, the largest open school in the world, had a mandate to enhance opportunities for women and girls. However, while enrolments of girls in conventional schools have increased from 11 percent in 1950-1951 to 37 percent in 2003-2004, wide disparities still exist. Mishra reviewed NIOS's figures and found that while the proportion of female learners in NIOS was higher between 1990 and 1993, it has subsequently been falling even though the proportion of girls in conventional schools has been rising. She attributes this gap to barriers to schooling existing prior to 1993. Since then, the barriers in formal schooling situations have been reduced by government measures such as the recruitment of women teachers, the provision of appropriate facilities for girls, free elementary education and bicycles for travel to schools, and the assurance of spaces in schools. She found that in a number of state open schools the demand for secondary education through open schooling was higher for females. Mishra concluded that "access to education alone was not enough to create gender equality" (p. 7); female students certainly enrolled in open schooling but a minority registered in Mathematics although many chose Science. These trends indicate that the females may not have recognized the importance of mathematical skills as well as scientific knowledge in their future occupations.

While the NIOS in India has been the focus of this case, a similar project has been the Bangladesh Open School attached to the Bangladesh Open University. In a report on the project, Mattuber (2005) noted that some ongoing challenges were the maintenance of updated curriculum materials and recruiting sufficient numbers of students to ensure adequate revenue and to meet the university's mission to reduce educational equities. He quoted the 2005 enrolment as approximately 269,500 students, of which 40 percent were female. He added that the heavy reliance on print and "the lack of teachers trained in multimedia" (p. 26) resulted in difficulties in transforming the curriculum.

8.5 OPEN SCHOOLING IN SUB-SAHARAN AFRICA

The international development movement in the 1960s was the original impetus for distance education in various African countries. Most projects focused on providing teacher training and many of these endeavours did not persist beyond changes in government and termination of the initial funding. More recently, the United Nations' target of Education for All and the focus on early basic education, the realities of an inadequate secondary schooling infrastructure, the large numbers of out-of-school students, and the prevalence and ongoing impact of HIV/AIDS have brought renewed emphasis on the possibilities of open schooling. In particular, Botswana, Namibia, and Zambia have significant open schooling systems.

In several African countries the centres responsible for adult education have undertaken the provision of secondary schooling. The Institute of Adult Education in Tanzania, the Zambian College of Open and Distance Education, the Namibian College of Open Learning, Botswana's College of Distance and Open and Learning, the College of Distance Education in Malawi, and the Emalatine Development Centre in Swaziland all serve adult and or secondary learners through distance education. The numbers of students are still relatively small compared to their school populations, the largest being Namibia with over 30,000 learners.

8.5.1 Open Schooling: Botswana

The Botswana programme dates back to the establishment of learning centres for teacher candidates during the late 1960s, which, over time, as government policies changed became centres for learner services. The Botswana College of Distance and Open Learning (BOCODOL) has used the learning centre architecture in its provision of open schooling for secondary out-of-school students. The centres are located in the local village schools. Local teachers apply to become tutors and coordinator of the centre but the resources for the centre are supplied by the BOCODOL. At the local centre, potential students can obtain information and advice and enrol in courses. They can also receive their study materials, attend weekend tutorials, and have their assignments marked. Regional Offices coordinate, monitor, and evaluate the work of the centres, provide marketing and publicity, ensure organizational and tutorial support, and provide appropriate training programmes for part-time staff.

The quality of student services is an ongoing concern and BOCODOL uses a system of monitoring and evaluating not only learners, but also tutors and the learning centre. These supervisory functions are carried out mainly by Regional Office staff, who use data from random interviews with students, Learning Centre Supervisor reports of tutorial sessions, and their own assessment of the effectiveness of the Learning Centre Supervisor in monitoring the quality of the centre. Although they have study materials, students are expected to attend weekly tutorial sessions and do assignments regularly. Hence, there is a need for responsive, positive, and frequent feedback to learners. The students study materials include print and audio cassettes. In addition, radio programmes aired once each week contain a combination of course-specific and general study skills information.

According to Thuteotsile (2004), the challenges faced by BOCODOL vary from the digitization of records for automated record-keeping to ensuring the safety of tutors and students since most tutorials occur in the evening. Other challenges include tracking down learners who stop attending without notice, and the low examination pass rate due to infrequent assignment submissions. In addition, the problems of great distances and low population numbers, seasonal changes, competing family pressures, and work-shifts which influence attendance result in a number of very small centres with few students, which in turn impacts services, costs, and monitoring.

8.5.2 Open Schooling: Zambia

In general, those leading African open schooling initiatives have sought to adopt multi-media technologies despite the lack of a robust infrastructure in many instances, believing that the development of infrastructure will support growth and that multimedia approaches will enhance learning. Radio has proved to be an important medium in reaching children in a number of countries. The most famous is perhaps the Australian School of the Air. Others include the Radio Mathematics project in Nicaragua, the Brazilian radio, and television project or the Radio-Assisted Community Basic Education project in the Dominican Republic (Shrestha, 1997).

A recent project using radio as well as print resources is Zambia's Interactive Radio Instruction programme. The Zambian programme began as a result of a study initiated by the Ministry of Education in 1999 and undertaken by faculty from the University of Zambia. The study identified the numbers of out-of-school children, the reasons why they were not in school, the institutions that were providing some non-formal schooling, and the type of programmes provided. It also made recommendations for radio broadcast programmes which might assist these institutions (Lubinda, 2004). The result was a pilot programme, the Interactive Radio Instruction programme, undertaken by the Educational Broadcasting Services of the Ministry of Education and begun in 2000. It involved twenty-two centres in three different areas of the country including both urban and rural populations. One hundred radio programmes based on the national curriculum for literacy, numeracy, and life skills were developed and broadcast over a 6-month period to 900 registrants. Besides significant learning gains, the researchers found that older students also participated, and that, in general, the organizational

partnership model worked very well with communities who identified volunteer mentors responsible for conducting the lessons and looking after the radios and some supplies associated with the project. Since 2000, "interactive radio centres have been established in all nine provinces" (p. 68) and "over 1,000 IRI programs for grades 1-5" have been produced (p. 70). By 2004, there were 642 centres with over 38,500 learners. The numbers of boys and girls have remained fairly even. However, there are "over 600,000 learners who cannot access formal education" (p. 73), which makes this project all the more important.

Lubinda (2004) described how children aged 9-15 years were put into learning groups and attended listening centres organized by the local communities and run by volunteer mentors chosen by the community. Each year, these mentors received a guidebook suggesting pre- and post-broadcast activities. Three days of formal training from the Ministry of Education focused on "how to organize learning in groups, how to play learning games and organize student-centred learning activities, how to ask and answer questions, how to teach reading, and how to talk about issues concerning HIV and AIDS" (p. 70). The volunteer mentor is paid (in cash or kind) by the local community, while the Ministry is responsible for the development of the scripts, the printing of the mentor guides, the payment of the radio actors, and the broadcast costs.

As the programme has grown, the Ministry has appointed outreach coordinators responsible for capacity-building in communities, linking closely with the Ministry officials, ensuring good communications, and developing partnerships. Partnerships with local radio stations that have publicized and often rebroadcast the programmes have not only ensured greater local involvement, but helped in areas where the signal has been poor. Non-governmental agencies such as churches have helped provide facilities and do local organizing. International partnerships have helped provide learning materials and resources.

The Ministry maintains the enrolment and accrediting database including demographic information on learners. The programme of continuous improvement calls for external evaluations by University of Zambia faculty and the Examination Council officials. These evaluations have been held annually since 2001 for grades 1-3. Nonetheless, the need for better programme design, distance education pedagogical training, and production techniques for the programme writers and developers remains a challenge. Recently, the new pedagogies for teaching literacy have been incorporated into the broadcast designs. In addition, while the Ministry has plans to expand the life skills programmes, to introduce the programmes into formal schools, and to develop programmes for adult literacy and in-service teacher training, several other challenges need addressing. These include the lack of material and financial support for the mentors and centres, which results in frequent turnover and poor learning conditions. Similarly, when these learning centres become community schools, the mentors sometimes abandon the radio programmes even though the Ministry prefers that the school continue to use them. Finally, the project depends on adequate numbers of quality broadcasts reflecting current curricula and contemporary pedagogy. As Lubinda (2004) concludes, the "poor and erratic funding to the department is a hindrance to the timely production of programs" (p. 73).

8.6 OPEN SCHOOLING IN CONFLICT SITUATIONS

Besides all the children who are not able to attend a school due to economic or social conditions (usually poverty and distance), there are over 60 million children who have been displaced by humanitarian emergencies and "at any one time over 6 million children worldwide are refugees from conflict" (Fentiman, 2004, p. 2). While there are many reasons for their displacement, HIV/AIDS and conflict are two major reasons for the disruption. According to UNAIDS (2003), it is estimated that by 2010 there will be 44 million children who will have lost at least one parent to HIV/AIDS. In these situations, the out-of-school strategies developed by programmes such as BOCODOL and NIOS and CNED created to serve French children during the Second World War are important in terms of providing an alternative to formal schooling. In conflict situations, the use of radio becomes particularly useful due to its ability to compensate for the mobility of the group. The Interactive Radio Instruction programme from Zambia is one model and is not unlike the radio programmes provided to children of the Fulani and other nomadic peoples in Northern Nigeria by the Nomadic Commission (Usman, 2001). Brophy (2003) listed a range of radio schooling programmes provided by the BBC World Service to children in refugee camps in various countries from Albania to Afghanistan.

8.7 COMMENTARY

From the isolation and distance which drove the initial impetus for open schooling in Australia and Canada to the social and economic issues facing the rapidly growing populations of India and sub-Saharan Africa, the opportunities provided by an alternative form of schooling were never in doubt. From among these opportunities, however, a number of commonalities seem evident.

In general, the form of open schooling has followed that of formal schooling. It has been seen less as an alternative form of schooling than as another way to provide formal schooling. It has seldom broken through the mirror of formal schooling. NIOS is one example where an alternative curriculum which allows students to study at their own pace has been constructed.

Most open schools follow a model which requires some face-to-face interaction. Whether it is the parent, the volunteer tutor, or the teacher, most schooling models require some combination of interaction as well as independent study.

Students who have support beyond the tutorial or school setting are more likely to succeed. A number of schools have encouraged study groups to help provide this ongoing support.

The impact of digital technologies has brought new challenges and opportunities. The reconfiguration of open schooling in Australia and the changes planned at NIOS and BOCODOL suggest that the rapid adoption of digital technologies from cell phones to CD ROMs, and for more immediate Internet access, is challenging open school personnel to decide how to integrate these technologies into their present systems.

The real challenge will be to decide how they can transform their systems to be more learner-centred and responsive to students' needs.

Governments and countries look to distance education to provide alternative ways to educate their young people. For many children and youth open schooling is the only avenue to education. In general, however, the open schooling initiatives as described in this chapter have been driven largely by economic, geographic, social, and political imperatives. They have evolved as a reactive solution to problems rather than as a viable proactive educational alternative adopted as a means to provide better or more effective forms of teaching and learning. Without a more pedagogical or educational imperative for open schooling, it will likely remain a poor cousin rather than a valued member in the tradition of education.

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