COMMONWEALTH *of* LEARNING

PERSPECTIVES ON
DISTANCE EDUCATION

Open Schooling
in the 21ˢᵗ Century

Dominique A.M.X. Abrioux
and Frances Ferreira, Editors

COMMONWEALTH *of* LEARNING

The Commonwealth of Learning (COL) is an intergovernmental organisation created by Commonwealth Heads of Government to encourage the development and sharing of open learning and distance education knowledge, resources and technologies.

PERSPECTIVES ON DISTANCE EDUCATION: Open Schooling in the 21st Century

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ISBN *978-1-894975-33-9*

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PREFACE

Few forces are as powerful as an idea whose time has come. Open schooling is an idea whose time has come. This book will help to release its power.

The aspiration of making education available to all is not new. More than two centuries ago, Adam Smith argued for universal education on the grounds of public order and the preservation of freedom. A century later, Meiji Japan fostered education as the basis for a strong army and a rich country. By the mid-20th century, education was enshrined in the Universal Declaration of Human Rights:

> "Everyone has a right to education. Education shall be free, at least in
> the elementary and fundamental stages. Elementary education shall
> be compulsory. Technical and professional education shall be made
> generally available and higher education shall be equally accessible to
> all on the basis of merit."

In the last years of the second millennium, the nations of the world resolved to give reality to this statement. In 1990, at Jomtien, Thailand, and again in 2000 at Dakar, Senegal, four agencies of the United Nations brought together over 150 governments and other organisations to develop plans for making Education for All a reality. In the 1990s, movement was slow, partly because population growth eclipsed the advances made in enrolling more children in school. However, progress has been much faster since the Dakar Forum. There were 40 million more children in school in 2006 than in 1999.

This success was achieved by focusing international effort after 2000 on the core goal of Universal Primary Education (UPE). The Dakar Forum had articulated six goals, covering aspirations ranging from the expansion of early childhood education to a drastic reduction in adult literacy. Two of the Dakar goals – UPE and gender equality – were incorporated into the Millennium Development Goals. Donors created a new mechanism, the Fast-Track Initiative (FTI), to help developing countries where conditions were judged to be propitious to achieve these two goals quickly.

The FTI has been relatively successful. Many more children are entering and completing primary school. This means that the number of children now ready and eager for secondary schooling is increasing very rapidly. UNESCO estimates that to achieve a global secondary net enrolment ratio of 80% would require secondary places to be found for 200 million more youngsters. Yet countries that have struggled to build the schools and train the teachers necessary to achieve universal primary education simply do not have the resources to repeat the process for secondary schooling using conventional methods.

This is one reason why this book on open schooling is so timely. Until now the movement to create and expand open schools has been overshadowed by the successful and massive

expansion of open and distance learning (ODL) at the post-secondary level through open universities and dual-mode institutions. But now the expansion of secondary education is the world's most pressing educational challenge. This carefully prepared and thoroughly researched book should inspire policy-makers and educational planners to explore how open schooling can expand secondary education cost-effectively in their jurisdictions.

A second reason for the new importance of open schooling is that the success of the campaign for universal primary education was bought at the cost of neglecting the other Dakar goals of Education for All, notably:

- Ensuring that the learning needs of all young people and adults are met through equitable access to appropriate learning and life skills programmes.
- Achieving a 50% improvement in levels of adult literacy by 2015, especially for women, and equitable access to basic and continuing education for all adults.

The studies in this book demonstrate that open schooling can also address these goals if it is appropriately designed. This is not to say that open schooling can be all things to all people at all times, because all institutions need to be clear what their main focus is. However, through its inherent flexibility, open schooling can address a range of needs.

Open schooling resonates well with the dynamics of the 21st century, when the concept of lifelong learning will underpin all education and training. The idea of lifelong learning did not feature in the Dakar goals that were agreed on a decade ago. These goals tried to marry the conceptual frameworks of formal and informal education, developed in the industrialised world over many years, to the complex patterns of learning in developing countries where education systems are still works in progress. It was an uneasy marriage.

Open schooling is one way of breaking out of this old paradigm. It can support the lifelong learning that enables people to prepare for – and respond to – the different roles, situations and environments that they will encounter during their lives. It can provide education, training and learning systems through which people can both learn and receive guidance and encouragement.

One of the many virtues of this book is that it shows, with examples, how open schooling can be adopted for a range of purposes and how it can use a variety of technologies and approaches. The book also reveals, through its analyses of a diversity of institutions, how the notion of open schooling can be applied very differently from one jurisdiction to another. It seems clear that open schools work better if they are given a degree of autonomy and not run as branches of government. One surprise is that private providers have not yet realised the potential of open schooling, even though success in this endeavour, even more than in traditional education, depends on effective business processes.

This book also reveals that the industrialised world can learn from the developing world as much as the other way around. In particular, it seems that in the richer countries, institutions are in danger of treating technology as an add-on rather than using it to substitute capital for labour. The add-on approach risks lessening the cost-effectiveness of open schooling, a dangerous option in these straitened economic times.

One of the spin-offs of the expansion of ODL at the post-secondary level has been a blossoming of research and evaluation on ODL, which in turn has led institutions to pay more attention to collecting and analysing data about their operations. The bigger institutions often have special units devoted to institutional research. Open schooling does not yet receive anything like the attention that researchers and analysts lavish on ODL at

the post-secondary level. Indeed, one of the difficulties facing the editors in producing this book was that because the institutional research function is largely lacking in open schools, some analyses on learner behaviour simply could not be carried out.

The publication of this book should be a catalyst that will make open schools more conscious of the need to base their decisions on evidence and therefore more conscientious about collecting data. Those joining the field now have a real opportunity to contribute to the conceptual and practical development of open schooling, as well as to address the world's biggest and most urgent educational challenge: scaling secondary schooling.

I congratulate the editors, Dominique Abrioux and Frances Ferreira, for bringing all these interesting contributions together and providing excellent syntheses and pointers for the future in their introduction and conclusion. By demonstrating and documenting its achievements, this book will enhance the contribution of open schooling to scaling up secondary education. This will help to bring forward that great day when the world will be able to say that Education for All has been achieved.

Sir John Daniel
President and CEO, Commonwealth of Learning

THE CONTRIBUTORS

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ED DU VIVIER is an independent consultant, specialising in adult literacy, community education and open schooling. Between 1994 and 2002, he assisted in the establishment of the Namibian College of Open Learning (NAMCOL) and the Namibian Open Learning Network. Since that time, he has carried out work for open and distance learning institutions, NGOs, government bodies and international agencies in Botswana, Lesotho, Canada and Ireland, where he is based. In 2008, the Commonwealth of Learning published a self-instructional course prepared by Du Vivier for senior managers and policy-makers. It is titled *Costs and Financing in Open Schools*. Du Vivier also edited a resource guide for managers – *The Open Schools Manual* – published in 2009.

JUSTIN ELLIS completed his university education at Stellenbosch University (B.Sc.) and the University of Manchester (M.Ed.). In 1972, he moved to Namibia and was employed successively as a teacher, Assistant to the Director of the Bureau of Literacy and Literature, and Secretary to the Christian Centre. In 1978, following part-time journalistic work, he was expelled from Namibia and moved to Britain. In 1981, he became Administrator of the London-based Namibia Refugee Project and took part in various solidarity activities. Ellis returned to Namibia at independence in 1990 and has been employed by successive ministries of education as Under Secretary, bringing into being, or reforming, programmes for adult literacy, open and distance learning, arts and culture, national heritage, and libraries. He is currently Programme Manager of the Education and Training Sector Improvement Programme (ETSIP). Ellis is a Commissioner of the National Planning Commission and serves on the NAMCOL Board of Governors, the Namibian National Commission for UNESCO and other boards. He served for some 12 years on the Governing Board of the UNESCO Institute for Lifelong Learning in Hamburg.

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GREVILLE RUMBLE is a freelance consultant specialising in the policy, planning, management and costs of distance, flexible and blended learning. He worked professionally in the UK Open University in a range of positions and capacities, such as corporate planner, staff member in the international consultancy service, regional director responsible for delivery of service to students and, ultimately, Professor of Distance Education Management. He also worked in the Universidad Estatal a Distancia in Costa Rica, from which he has an honorary doctorate. Rumble was educated in Ecuador, Switzerland and the UK. His Ph.D. focused on the costs and economics of distance education. He has consulted widely in distance education in over 50 countries in Latin America, Asia, Europe, the Middle East and Africa, and has written extensively in the field.

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Part I: Introduction

CHAPTER 1

SPECIAL ISSUES AND PRACTICES IN OPEN SCHOOLING

Dominique A.M.X. Abrioux

BACKGROUND

Regardless of the country or its stage of development, various factors are combining to encourage policy-makers and senior bureaucrats throughout the world to examine – or, in some cases to re-examine – the contribution that open schooling (OS) could be making to the attainment of their jurisdiction's secondary schooling objectives. Nowhere is this more evident than in the developing world, where past successes and major new challenges are giving rise to the examination and development of the OS model such that open schools become an integral vehicle for the achievement of public educational policy.

Open schooling is defined by the Commonwealth of Learning (COL) as "the physical separation of the school-level learner from the teacher, and the use of unconventional teaching methodologies, and information and communications technologies (ICTs) to bridge the separation and provide the education and training" (Phillips 2006, p. 9).

In reviewing for COL the performance of two major open schools, Rumble and Koul (2007, pp. 234–236) introduced two complementary concepts to the definition of OS: the market or target group being addressed (youth, in school or out, adult) and the nature of the curriculum (conventional or alternative). The authors concluded that there were two different approaches to OS: one complementary to the conventional system (and that replicated its curriculum); and the other alternative to the conventional system (and that presented a more adult-relevant curriculum).

There is little doubt that OS can assist in dramatically improving access both by school-age children and by adults to high quality secondary schooling, just as open and distance learning (ODL) has already done at the tertiary level for secondary school leavers and adults. By the start of this millennium (and in contrast to the situation in primary education), there were sufficient examples of successful secondary OS both in the developing and the developed world to allow researchers (e.g., Dodds 2003; Perraton 2004) to refer to solid records of achievement and claims of potential. What remains missing, however, is extensive documented investigation and research with which to

counter the inadequately or ill-informed prejudices of highly influential stakeholders who may consider OS to be a second-rate alternative to conventional schooling.

At issue then, and what the case studies in this volume seek to elucidate and inform policy about, is the form that OS needs to take if it is to succeed at the secondary level.

Secondary schooling core issues and open schooling

Though different in scope and relative importance, the issues facing the individuals and collectivities responsible for secondary schooling throughout the developing world – and the issues that some are seeking to partially address through OS – are remarkably similar in all jurisdictions. Those issues include:

- increasing the breadth and equality of access;
- ensuring openness of access;
- ensuring that the curriculum provided to secondary school learners is relevant to the needs of their various constituencies;
- improving the quality of teaching and learning; and
- maximising the cost-effectiveness, cost-efficiency and sustainability of the educational system.

Breadth and equality of access

On the one hand, much of the developing world faces access restrictions that they share with the rest of the world (albeit on a different scale), such as those confronted by geographically separated learners, young people with disabilities or people from traditionally disadvantaged segments of society (e.g., indigenous youth and youth suffering from gender-related discrimination). On the other hand, in many developing countries even greater segments of the school age population are denied access to secondary school simply because insufficient schools (and teachers) exist to accommodate those eligible to attend. This situation will dramatically worsen as universal primary education objectives (as set out, for example, in the United Nations 2nd Millennium Development Goal) are increasingly met. It will also be aggravated in some cases by a projected dramatic increase in the size of the school age population.

The magnitude of the challenges facing some developing countries in providing access to secondary schooling, particularly at the senior secondary level where attendance is seldom obligatory, is underscored in UNESCO's recent Education for All (EFA) Global Monitoring Report. It emphasises several key points:

- Although worldwide increases in post-primary participation rates were significant between 1999 and 2006 (rising from 52% to 58%), end results varied greatly by region. At the low end, for example, and notwithstanding a 7% increase over 1999, only one child in four participated in secondary schooling in sub-Saharan Africa in 2006, leaving some 78 million of the region's school-age children out of school.
- While by 2005 the median transition rate from primary to secondary was greater than 90% throughout the world, South and West Asia (87%) and sub-Saharan Africa (62%) proved to be notable exceptions.
- Inequalities in society still negatively impact access to secondary education.
- The transition from junior to upper secondary continues to represent a significant dropout point in many educational systems.

- The secondary curriculum is too often inadequately needs-based, emphasising academics at the expense of technology- and vocational-based curriculum.

Such challenges are further magnified in many developing countries by the often insufficiently met task of responding to the secondary schooling needs of the adult population. Many adults have either failed to successfully complete secondary schooling during their youth or were denied the opportunity to receive a secondary school education at all.

Given the escalating link between education and employment or self-employment, removing barriers to facilitate access to secondary education for today's adult is important in and of itself. Moreover, it is by increasing access to secondary education for today's youth that tomorrow's adult secondary education needs can best be addressed. In both contexts, the potential for OS is without limit, on condition that its quality, offerings and cost-effectiveness are equal or superior to those of the conventional schooling system.

The important questions to be asked about access in the OS model, however, are often somewhat different than in the traditional system of secondary education. They include:

- Is the target audience regular school age or more mature?
- What are the socio-economic characteristics of the audience?
- Are traditionally disadvantaged segments of society being targeted?
- Will geographical isolation be an obstacle to access for a significant number of learners?
- Will learners from traditional schools be allowed to complement that schooling with OS?
- Will students who have been unsuccessful in the conventional school environment be encouraged to re-enroll through OS?
- Will learners necessarily have completed the normal schooling prerequisites?
- Will the language of instruction pose a particular problem for some?
- What supportive infrastructures (e.g., ICT, schools, meeting places, teachers, facilitators) will the different audiences have access to?

Degrees of openness

Openness of access is critical to the development of OS policy, just as it is becoming increasingly important in some conventional schooling systems that seek to either expand or better serve their audience.

This is exemplified by the fact that COL considers openness and flexibility to be more important features of OS than the distance between student and teacher, since specially designed independent study materials are generally coupled with regular meetings of learners and facilitators. The complementary role often played by face-to-face sessions in ODL takes on an added importance in OS, as the educational model must take into account the younger age of the learners. Consequently, COL uses the term "open schooling" rather than "open and distance schooling" because openness and flexibility are more important features than physical separation. As one of COL's publications expresses it, "Usually there are no rules dictating student ages, prerequisites, content of courses or numbers of courses in which learners must enroll. As a result, open schooling meets the needs of a broad range of learners" (Commonwealth of Learning 2008).

Open learning, of which OS is a subsidiary, represents an approach that can both:

- reduce barriers that may result from prior educational, financial, geographic, time or disability-related constraints; and
- recognise and accommodate a learner's preferred learning objectives (programmatic or course- or module-specific), his or her selected means for accomplishing the learning and demonstrating its attainment, and his or her need for student services that will maximise the individual's chances of success.

Table 1.1 identifies key attributes of open learning available to OS.

Table 1.1: Attributes of open schooling and open learning opportunities.

	Institutional Level	Programme Level	Subject/Course Level
In overcoming barriers	- geographic flexibility - age flexibility - part-time student status - financial incentives - means to accommodate special needs: – disabilities – underserved groups – working adults - range of language of instruction	- flexible admission criteria - flexible time to programme completion - continuous admission - uncapped admission	- range of prerequisites - compulsory face-to-face components - instructional technologies - continuous enrolment - uncapped enrolment - individualised pacing - flexible time to course completion - asynchronous delivery
In providing open learning	- student services - alternative delivery modes (or one model for all)	- non-traditional programmes - learner ability to determine programme components - compulsory/optional balance in curriculum selection	- range of instructional and communications media from which learner selects - negotiable: – learning objectives – content – pathways – assessment schemes

Thus, the first steps in developing a quality OS model for any particular jurisdiction are determining (1) where an open school is to be situated across the two continuums of overcoming barriers and opening learning, and (2) how this interfaces with the other dimensions of accessibility previously raised.

Relevant curriculum

School jurisdictions throughout the world, particularly starting with the secondary school level, are increasingly conscious of the need to ensure that programme completers are properly prepared for what comes next, be it further education, employment, or self-employment.

Important as this may be in the case of conventional schooling, it is all the more critical and challenging in OS where:

- the clientele often includes both youths and adults, full- and part-time;
- a less homogeneous learner population, comprising differently disadvantaged students, may require more individually tailored courses and programmes;
- different client groups may benefit from a different balance between academic and vocational programming;
- OS may be expected to address not only the individual's needs, but also those of the country;
- requisite economies of scale may place limits on the optimal breadth of the curriculum and programming; and
- often unjustifiable questions about the general quality of OS encourage compliance with standard, externally imposed curriculum rather than innovation (e.g., the recognition of prior learning).

These challenges notwithstanding, open schools must determine upfront whether they want to be complementary to the conventional schooling system (and deliver the same curriculum using open learning methods) or alternative to it (and also apply the open learning philosophy to the design of innovative curriculum and programmes).

Quality teaching and learning

Regardless of the educational model being exploited, policy-makers, bureaucrats, boards, administrators, teachers and learners are all concerned about the quality of teaching and learning. However, whereas these different stakeholders may share a common view of quality inputs in the traditional school system (e.g., class size, teaching qualifications, accessible resources, physical and virtual infrastructure), such is not the case in their view of OS. The fact that these stakeholders seldom have any experience of the OS model – or of the century of positive results of its predecessor, correspondence schooling – may not only lead them to question whether quality OS is even possible, but also to apply inappropriate traditional schooling quality inputs to the OS environment.

Ironically, as traditional schools and jurisdictions themselves start to engage in OS practices, the reputation of OS may well increase without a commensurate improvement in its quality. Consequently, it is all the more important to ensure that quality inputs and quality assurance measures for OS be developed and shared. Significant aspects of OS systems that impact quality and quality assessment include:

- barriers to access
- degree of student-centredness and open learning
- relevance of curriculum
- learning materials and their presentation
- degree of personalised academic support

- secondary materials (and how accessed)
- formative and summative assessment
- student success rates
- student advising and other support services
- distribution of learning materials
- accessibility to other administrative functions
- institutional marketing and promotion
- use of ICTs in teaching, learning, support and administration
- service culture

Cost-effectiveness, cost-efficiency, and sustainability of quality

Escalating food costs, crashing financial markets, reductions in aid programmes and major ongoing investments in universal primary education are new and significant, issues impacting the ability of a developing country to invest in secondary education. It is therefore increasingly essential not only that the case be made about OS's cost-effectiveness, but also that expectations around its costing advantages vis-à-vis conventional schooling be addressed from a factual perspective.

Quality education is expensive, whether delivered in a classroom or through open learning. While there is evidence that the latter is more cost-effective than the former, developing and maintaining a cost-effective, cost-efficient and quality-sustainable OS system requires significant initial and ongoing investment, underpinned by an understanding of different fixed and variable costing structures, and the factors affecting these.

THREE SPECIAL THEMES ON OPEN SCHOOLING

The six case studies presented in this volume reflect three special theme areas that are of fundamental concern to policy-makers and senior bureaucrats, and that arguably may have the greatest influence on the success and acceptance of any OS institution. Those themes include:

- what role senior policy-makers and decision-makers might play through policy development in promoting OS;
- how the exploitation of technology should be addressed to maximise its contribution to the accessibility, quality and cost-effectiveness of OS; and
- what key aspects of the funding of open schooling stakeholders need to be cognizant of to best support their current or future investment in OS.

Enabling policy for open schooling

In recent years, researchers have started to draw attention to the need for coherent policy development for ODL in general at both the national and the institutional level (see, for example, Perraton and Lentell 2004; Naidoo et al. 2006). In the special theme chapter by Du Vivier and Ellis (Chapter 2), the authors demonstrate why enabling policy is even more essential for secondary-level OS.

Through comparisons with other educational sectors, Du Vivier and Ellis provide a broad framework for government policy-makers responsible for OS by proposing how policies

should be developed for OS and which policy areas are key to ensuring a high quality, sustainable OS system. As well, the authors emphasise that for enabling policy for OS to be successful and accepted by stakeholders within and outside OS systems, government must involve itself in policy development around OS for reasons that may be less significant than in the entrenched traditional schooling sector. Those reasons include:

- to give stature and credibility to an educational model whose innovative approaches and underserved clientele are too easily sidelined by most education stakeholders;

- to provide stability and protection from the vagaries of government and inter-institutional politics; and

- to ensure that key government decision-makers are informed through policy about the intrinsic differences between OS and conventional schooling and how these can affect key performance indicators and measured outputs.

However, Du Vivier and Ellis also sound warnings about policy-making, as well as about the two issues focused on in the other special theme chapters – namely, the dangers of letting OS policy be driven by anticipated lower costs (relative to costs in conventional schooling systems) and the pitfalls that can affect a policy framework if ICTs are assigned too important a role relative to human and institutional factors.

Using ICT in open schooling

While our case studies demonstrate various ways in which ICT can be used to enhance the administration, pedagogy and management of student learning in OS, they also draw attention to the practical challenges that many institutions face in this regard, particularly in the developing world. In the special theme chapter by Haughey and Stewart (Chapter 3), the authors outline the background, context and analytical processes that policy-makers and senior administrators need to master if they are to maximise their efforts in determining the optimal role that ICT should play in their OS model and in formulating policies that support this.

Before outlining the different nature and levels of issues to be addressed when developing an ICT infrastructure and policy environment for open schooling, Haughey and Stewart emphasise the importance of understanding:

- who the OS institution exists to serve;

- the desired outcomes;

- how flexible or open a model is being targeted; and

- the ICT experiences of other public sector organisations and service providers in the region.

Moreover, key decisions about ICT must not be formulated in an institutional vacuum. Rather, they should involve, in addition to all institutional stakeholders, government and state representatives, thereby enabling the installation and support of a scalable and flexible infrastructure.

Treatment of an open-source versus proprietary software policy issue is also of special interest to decision-makers. While no recommendation is made here that will render their decision-making easy, the implications of the different choices are clearly presented.

The financing of open schooling

Rare are the jurisdictions (though one of our case studies is one) where policy-makers and government officials are willing to support an OS model that requires a greater level of operational funding on a-per student basis than is provided to conventional schools. More frequently, despite OS's wide social, economic and educational benefits, decision-makers approach the funding of OS with the expectation that operational costs per students must be lower than in the traditional schooling environment. Consequently, policy-makers often see OS as a means not only for increasing access without pro-rated investments in school buildings and their maintenance, but also as a less expensive operating model.

In the special theme chapter by Rumble (Chapter 4), the author presents a context for approaching finance-related policy decisions concerning ODL in general, and OS in particular, and the means for rationalising expectations about OS's relative cost-effectiveness. He provides an analysis of the costing structure for ODL, an enumeration of factors that will impact the average cost outcomes in OS systems, and key financial issues associated with introducing ICTs into OS systems in the developing world.

In Chapter 4, Rumble also presents several important implications for OS policy-makers, not the least of which is that OS faces much greater difficulty in keeping school-age learners motivated than ODL faces in engaging adults. The financial implications of addressing this challenge can, depending on how they are approached, result in escalating technology and human add-on costs that will undermine the OS model's cost-effectiveness advantage over more conventional systems of schooling.

THE CASE STUDIES

When planning this volume, we invited six Commonwealth countries to contribute case studies. Specifically, we were looking for input from educational leaders associated with open schools, as well as organisations meeting COL's definition and displaying strong OS features. Our selection includes four open schools from the developing world and six cross-sections of countries from various parts of the Commonwealth: two from sub-Saharan Africa (Botswana College of Distance and Open Learning, BOCODOL; Namibian College of Open Learning, NAMCOL); two from Oceania (Open Access College, South Australia, OCA; Open College, Papua New Guinea, UPNG-OC); one from South Asia (National Institute of Open Schooling, India, NIOS); and one from North America (Vancouver Learning Network, Canada, VLN).

The selection ensured that the case studies included institutions that:

- had different governance models and levels of autonomy;
- were positioned at various stages in their organisational life (infancy, adolescence, maturity, rebirth);
- were targeting a range of core audiences (primarily youths, adults or both);
- were demonstrating various degrees of openness;
- had a wide range in annual enrolment;
- had a wide range of catchment area sizes;
- had various levels of human support (teachers, facilitators, peers) and modes (face to face, online, telephone);
- had a range of student success and through-put rates; and
- were able to exploit ICTs at very different levels.

To assist the reader in making comparisons and drawing conclusions, the case studies adopted a common template. Table 1.2 (see pp. 12–13) provides an overview comparing some key features of the institutions being studied.

Botswana College of Distance and Open Learning (BOCODOL)

BOCODOL was established 10 years ago and, since becoming operational two years later, has emerged as a primary contributor to Botswana's commitment to improving secondary participation and success rates, thereby building on its accomplishment of having already achieved universal access to the first 10 years of schooling.

Together with its sister institution in Namibia (see below), BOCODOL is of particular interest as a case study for two reasons. First, it exploits a study-centre delivery model that had previously been less than successful in sub-Saharan African countries such as Malawi, Zambia and Zimbabwe (see Dodds 2003; Perraton 2007). Second, these newer institutions are built on a much more autonomous governance foundation and demonstrate a greater concern for student services than was earlier the case. To quote Perraton (2007, p. 46):

> "Five years ago it looked almost time to write the study-centre obituary.
> They were a valiant attempt to offer an inferior form of education, to
> children with inadequate primary-school results, that was still better
> than nothing. While they were set up by ministries of education as part
> of the demand-led expansion of education that followed independence,
> they were then treated by ministries as a poor relation of the proper
> schools and regarded as a second best by the public. But the record is
> not entirely negative and it may be that, with an increased concern for
> the quality of student support, Botswana and Namibia will demonstrate
> that the model still has enough merit to survive."

The government's commitment to BOCODOL is evident in the fact that the institution was created through an Act of Parliament and given the important semi-autonomous status that board governance can provide (though members are appointed by government), as opposed to official status within the ministry of education.

With more than 60% of its enrollees already having benefited from access to secondary school, but having been unsuccessful, BOCODOL can be considered as primarily complementary to the conventional school system insofar as its principal clientele and curriculum are concerned. Openness at BOCODOL focuses on course pacing, certificate time to completion (even allowing for a period during which students can suspend their studies), options around examination sitting, and geographic accessibility. However, there are important restrictions around admission criteria, based on previous educational accomplishments.

Once admitted, students are integrated into, and supported by, a large network of study centres. These exist in three different forms depending on the level of enrolment in the area. Thanks to the local services provided, the strong culture of quality assurance and the importance attached to staff training, students who complete their certificates through BOCODOL perform on an equal footing with those in the conventional system.

Nevertheless, equally telling for policy-makers concerned with the cost-effectiveness of producing certificate holders is the high incomplete rate, particularly at the senior secondary level, that BOCODOL experiences. This occurs mainly because of the inability

Table 1.2: Comparison of the six open school case studies.[1]

	BOCODOL	NAMCOL	NIOS
Established	1998	1997	1989
How?	By Parliament	By Parliament	By Minister
New or renamed	New	New	Renamed NIOS in 2002
Governance	Board	Board	Board
Single/dual mode[a]	Single mode	Single mode	Single mode
OS autonomy	Semi-	Semi-	Semi-
Head count[b]	5,800	25,000	364,000
Relative openness			
Geographic	Yes	Yes	Yes
Admission	No	No	Some
Regulations	Yes	No	Yes
Curriculum	No	Minimal	Some
Audience	Under 21: 85%	Under 20: 17%	Under 21: 75%
	Female: 60%	Female: 65%	Female: 31%
Targeted students[c]	Complement +	Complement	Alternative
Curriculum[d]	Complement +	Complement[e]	Alternative
Course materials[f]	Print	Print	Print
Student support			
Academic	Study centres (optional)	Study centres (optional)	Study centres (required)
Non-academic	Study centres	Study centres	Study centres
Full-time staffing	120	70	250
Part-time staffing	800	1200	50,000+
Operating cost to:			
Government	Lower	Lower	Lower
Student	Similar	Similar	Higher
Use of ICTs			
Learning material	Minimal	Minimal	Minimal
Learner support	Minimal	Minimal	Examinations
Administration	Moderate	Moderate	Moderate
Student success[g]			
Pass rate	Similar	Similar	Similar
Grades	Lower	Lower	Similar
Incomplete	Higher	Higher	Considered failures

a   Board responsible for OS (single) or OS and traditional schooling (dual).

b   Annual enrolment, and only at the secondary level (in cases where institutions offer other levels). BOCODOL and NIOS report only new enrolments

c   In terms of whether they predominantly complement the conventional system or are alternative to it.

d   In terms of whether they predominantly duplicate that of the conventional system or are alternative to it.

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1.   Entries that are subjective in nature reflect the editors' rather than the case study authors' perspectives.

OAC	UPNG-OC	VLN
1991 By merger of two previous government distance education institutions	1978 UPNG renamed OC in 2002	1990 By school board Renamed VLN in 2007
Board Single mode Autonomous	Board Dual mode Operational only	Board Dual mode Semi-
2,000	7,000	7,500
Yes Minimal Minimal Minimal	Yes Yes Minimal Minimal	Limited No Online: N; print: Y Minimal
School-age: 75% Female: 60%	Under 26: 70% Female: 45%	School-age: 85% Female: 55%
Complement	Alternative	Complement
Complement Print, transitioning to online	Alternative Print	Complement Online (with some print options)
Telephone (required) and transitioning to online for both	Study centres (optional) Study centres	Telephone and online (required) for both
50 FTE 20% of FTE	60 250	62 25
Higher Similar	Lower Higher	Similar Similar
Moderate Moderate Extensive	Minimal No Moderate	Extensive Extensive Extensive
Similar Similar Similar[h]	70%[i] Not comparable Very low	Higher Similar Higher

e   Grades 11 and 12 are combined into one year.

f   Primary medium by which students access content.

g   Compared with conventional schooling.

h   When compared with schools having similarly complex enrolment cohorts, but significantly lower than the state average.

i   Because of the alternative program, no comparison with conventional system of completion rates, grade distribution, or incomplete status is possible.

to co-ordinate upfront tuition payments due to BOCODOL, with the significantly higher (almost 10 times) fees for final exams payable later to the Botswana Examination Council.

Much lower government grants (almost five times less per full-time-equivalent learner than in conventional schools), a high rate of attrition and the fact that the majority of BOCODOL learners have previously attended (unsuccessfully) secondary school – all of these factors should alert policy-makers to the vagaries of cost-efficiency comparisons.

Namibian College of Open Learning (NAMCOL)

Operational for some 10 years, NAMCOL is a relative newcomer to OS, yet already serves some 40% of that country's secondary school population, a high number of whom are youth or young adults who were previously unsuccessful in the conventional school environment. Anticipating future concerns with its sustainability as government commits to significant increases in access to conventional schools, NAMCOL has started to enrich its offerings by adding vocational and professional programmes. Before that, its academic curriculum had paralleled, and was thus complementary to, that of traditional Namibian schools, albeit with the important innovation of combining grades 11 and 12 into a one-year programme.

Despite NAMCOL's semi-autonomous, board-governed status, its ability to provide flexibility for learners (e.g., around admission criteria, pace of study, course load) is restricted by the requirements of the National Examinations, Assessment and Certification Board. Consequently, NAMCOL's openness is defined primarily by the absence of age and geographical barriers and by the fact that any student can opt for a contact or non-contact open mode of study.

As is the case in other developing countries, infrastructure and cost restrictions are making it difficult for NAMCOL to take advantage of the newer ICTs, particularly as they could relate to teaching and learning. Consequently, it continues to favour a teaching and learning model that focuses on print-based self-instructional materials, complemented when students wish (as do some 80%) by regular face-to-face tutorials.

When cost-effectiveness is defined in terms of the level of government grant per student per subject (for grades 10 and grade 11/12), NAMCOL outperforms conventional secondary schools, slightly at the junior secondary grade 10 level, but dramatically (almost 3:1) at the senior 11/12 level. This is largely because the two senior years are combined into one.

The NAMCOL case study is also significant because it demonstrates that open schools and their respective stakeholders need to address how best to maximise the OS environment for disadvantaged students – in NAMCOL's case, dropouts from conventional schools. Though their pass rate when they do complete is equivalent to that of others, NAMCOL students are more likely than students from a traditional schooling environment to drop out before sitting the exams, or to achieve a lower grade.

National Indian Open School (NIOS)

Operational for almost 20 years, NIOS serves almost 10 times more secondary learners annually (376,000) than the other five case studies combined. In this way, NIOS still achieves success rates similar to those in India's conventional schools. This is all the more remarkable in that the vast majority of NIOS students – for the most part, youths and young adults – have been bypassed by the traditional secondary education system.

NIOS was heavily subsidised by India's national government and states during its early years. Today, however, the institution's dramatic growth, economies of scale and cost-effective models and structures contribute to NIOS's ability to operate while relying on government for less than 15% of the annual operating budget. This is in contrast to conventional national schools that are 100% funded by government.

With the exception of the relatively heavy financial cost borne by individual learners, NIOS is able to provide the most open learning environment of our case studies – even with such a large number of students, a factor that one might expect to lead to a more closed model. By positively impacting admission, self-pacing, and time to completion, NIOS's applied philosophy of OS is exemplified by its student-centred (yet highly secure) policies and practices around examination sitting. More than 400,000 exams are written (increasingly online) at 1,800 examination centres each year.

While NIOS's academic curriculum is mostly complementary to that of conventional schools, its vocational programmes demonstrate a responsiveness to the curricular needs of many of its students. This makes NIOS an alternative OS model by reason both of its clientele and of the increasingly alternative dimension to its programming.

Of further significance is NIOS's demonstrated ability to work collaboratively on such a vast scale. With a full-time staffing complement of only 250, it relies extensively on collaborative relationships to access academic expertise (for course development), study centres (all located in other schools) and their tutors, and examination centres and associated personnel. Defining itself as an "apex organization," NIOS not only achieves the added value in collaboration and monitored delegation of some of its own institutional responsibilities, but also provides leadership and experience (including, if desired, its courseware and examination system) to emerging state open schools throughout the country.

Open Access College, South Australia (OAC)

The sole provider of OS in South Australia, OAC arose from the 1991 merger of the South Australian Correspondence School and the School of the Air, which together had gained more than 100 years of experience in OS. While the college provides all years of schooling, this case study focuses solely on the senior secondary years.

The senior secondary experience and challenges of OAC are of special interest for several reasons.

First is the exceptionally diverse make-up of the student body and the implications that this has for the OAC's particular OS model:

- regular school-age students who are concurrently enrolled in conventional schools that cannot meet all their needs (50%[2] of secondary enrolments);
- school-age students, often enrolled full-time at OAC because of medical conditions (20%) or geographical remoteness (10%); and
- working adults seeking upgrading, including young parents, school dropouts, indigenous peoples, and incarcerated populations (20%).

Admission to OAC's senior secondary certificate is very open for isolated or otherwise disadvantaged youths, as it is for all adults, though access to the Internet is required. In order to assign priority to these groups, the average youth cannot enrol as a full-time student, though enrolment on a part-time basis is permissible. Once admitted,

students enrol in semester or year subjects, and just as the weekly group telephone lessons restrict self-pacing, so too do externally imposed assessment, reporting and accreditation parameters. OAC's complementary state-mandated curriculum provides its students with the same flexibility as that which is available to their conventional school counterparts.

Second is OAC's present need to shift from a primarily print- and telephone- supported teaching and learning model to online learning. Such a shift has many implications for organisational culture, quality control and ability to continue serving disadvantaged segments of the population. If OAC's advanced use of ICTs for administration, record-keeping and, in a more limited way, teaching has paved the way for this transition, it also comes at a time when state-funded, primarily print-based courseware (or funding in lieu) is no longer being provided. Nevertheless, government funding for OAC does recognise the higher costs of its OS and of properly serving its disadvantaged clientele.

Third is OAC's long tradition in OS and in supporting disadvantaged students and the exceptional emphasis it places on non-academic student services (such as enrolment and ongoing counselling, study skills and literacy support) and on staff development. All these efforts differentiate OAC from most of the other case studies in this volume. So, too, does the fact that OAC receives additional public funding not just based on the number of disadvantaged students it enrolls (as do conventional schools in the state), but also in recognition of the higher teaching costs associated with its particular OS model.

University of Papua New Guinea Open College (UPNG-OC)

Because it has adopted a uniquely alternative approach to its targeted audience and to its curriculum, UPNG OC is the most innovative of our case studies. At the same time, it is the most administratively constrained, lacking real institutional autonomy and limited by the dual mode (conventional and ODL) environment in which it seeks to flourish.

Established under its current name in 2002, UPNG-OC's Certificate in Tertiary and Community Studies (CTCS) benefited from the experience and reputation earned by the prior offering of an Adult Matriculation Program over a 25-year period. Unlike its predecessor, however, the CTCS curriculum has been developed with a view not only to providing a tertiary-level entrance qualification, but also to preparing the hitherto educationally underprivileged to acquire workplace-related competencies.

Today, the UPNG-OC is financially self-funded and enrols some 20,000 students per year, more than 70% of whom successfully complete their programme. Despite this overall success, the OS programme and its ability to prosper over the longer term are significantly hampered by the institution's status as an academic administrative unit within a centralised, supra-, decision-making organisation.

At the operational level, the OC's lack of autonomy results in the institution being less open than it might otherwise be (openness is primarily evident in terms of geography and admission criteria). Another result is the awkward, unfriendly (both to staff and to students) administrative processes and practices in place, which are defined more by the requirements and culture of the mother organisation than by the particular needs of the OC and its students.

The UPNG-OC's subservience to the university's governance and management models draws attention to the interrelationship between these models and the ability to engage in meaningful strategic planning and investment. For example, lack of financial autonomy

(even concerning funds it has generated itself), coupled with the absence of government funding, leads the OC to question its ability to commit adequately to important expenditures that will either better serve students (e.g., student support services, technology) or safeguard the programme's future credibility (e.g., course revision, new course development).

Vancouver Learning Network, Canada (VLN)

With almost 20 years of experience in OS, for the most part using a correspondence education model, the VLN has recently transitioned into a primarily online open school. It represents the most technologically advanced of our case studies, in course delivery, course management and institutional administration. The VLN also operates in a very competitive environment, one in which some of its sister OS institutions are struggling to exist. Thus, the VLN strategies around growth and sustainability are of particular interest, emphasising quality control and involving investment in teachers, staff development and the nurturing of parental support.

As is the case with the Open Access College, South Australia, the VLN draws more than half of its students from the ranks of those concurrently enrolled at a conventional school. However, since the VLN caters primarily to urban students, for them to enrol with the VLN often represents a free rather than a forced choice. Catering to such a clientele, particularly while exploiting the interactive opportunities provided by online learning, would therefore seem to necessitate a more structured, less open model than individualised, correspondence-study-based OS.

The VLN's brand of online learning will be of interest to policy-makers in both developed and developing regions, as it amply demonstrates that e-learning does not depend on technology infrastructure alone. Good online learning requires maximising the communicative and interactive opportunities that e-learning technologies open up for distance learning. Yet, as the VLN case demonstrates, this becomes a significantly more teacher-driven model of course delivery (with dynamic and ever-evolving online content) than a print-based distance education model (with pre-developed, static course materials). Open schools that provide quality online learning opportunities will require not only the prerequisite technology infrastructure, but also the availability of sufficient teachers (in the VLN case, as many as for conventional schooling). This in turn will necessitate a very different costing structure than for print-based OS. It may also require similar levels of operational funding as for more traditional forms of education, even with the economies of scale that will flow from what Rumble (author of Chapter 4) labels "committed costs."

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Part II: Themes

CHAPTER 2

FORMULATING POLICIES TO ENABLE THE DEVELOPMENT OF OPEN SCHOOLING

Ed Du Vivier and Justin Ellis

Public policy is generally defined as a more or less explicit statement of principles to guide decision-making with the intention of accomplishing a desired goal when addressing a recognised problem. In the context of planning open schooling initiatives, policy may be formulated at a number of different levels:

- The case studies included in this volume illustrate the range of procedures, protocols, rules and regulations that have been devised at the *organisational* level in open schools.

- In addition, *international* bodies such as the Commonwealth of Learning, UNESCO and the World Bank have been instrumental in defining principles, devising guidelines for best practice and setting funding priorities that create an enabling environment for the development of open and distance learning (ODL) in general.

- In some parts of the world, *regional* or sub-regional entities have also become involved in transnational initiatives to promote and develop alternative forms of educational delivery.

This chapter focuses on the role of intermediate levels of government – whether national, state or provincial, depending on where responsibility for education resides – in formulating policies that support the development of efficient and effective education provision, particularly in relation to open schooling (OS).z

There appears to be considerable variation within Commonwealth countries in terms of how active national, state and/or provincial governments have been in shaping the development of open schooling. Some may not have considered its potential at all, while others have articulated detailed policies for this sub-sector, though these are often focused on tertiary level studies. Many countries, states and provinces include some mention of ODL in their core planning for education. Others refer to it in the context of a policy on the utilisation of technology in the sector. Those working in distance-teaching institutions frequently complain that this mode of delivery is low down on the list of priorities for policy-makers, and staff members at open schools often feel like the "poor relations"

even within the ODL community. Our objective in this chapter is to provide a broad framework for those charged with formulating government policies for OS, as well as to offer insights into the complexity of the process.

WHY SHOULD GOVERNMENTS FORMULATE POLICIES FOR OS?

The earliest programmes of distance learning arose without any government intervention. Although conventional schools and universities in industrialised countries have received government subsidies since the 19th century, it is only recently that ODL institutions and open schools have benefited from financial support from the state. Given this history of development in the absence of public sector intervention, it is legitimate to ask why governments should become involved in formulating specific policies for ODL in general and OS in particular. The traditional answer to this question is that, by comparison with conventional education institutions, distance education involves very different cost structures that are, in general, poorly understood by educational planners and economists. Thus, to enable sustained development of this sub-sector, a considered policy for ODL and OS is highly desirable.

From the point of view of educational institutions, their students, staff, donors and other stakeholders, national, state or provincial policy for ODL is of enduring importance in setting out a government's intentions and priorities – that is, what it has made a commitment to do and on what basis such action will be taken. As Nhundu and Kamau (2002) note:

> "The existence of a policy framework underscores a government's commitment to distance education and allows for the marshalling of resources needed to support and accelerate the provision of distance education programmes. In order that distance education is not marginalized and relegated to the periphery of the education system, national policies should present distance education as a national initiative that is integral to, and contributes to, national planning developments." (quoted in Perraton and Lentell 2004, p. 251)

Good policy ensures that the ODL sub-sector is less vulnerable to changes in government and funding priorities. Incorporating references to ODL in public statements of a government's intentions can also raise the status of this form of education and demonstrate how it fits in with the education system as a whole. The same applies to policies for OS.

From the point of view of government office-holders and officials, a well-articulated policy also has several advantages. It can enable planned development of the distance education system by:

- creating a broad consensus on the most appropriate direction for the future development of OS;
- contributing to the formulation of minimum standards of service delivery and assuring that OS programmes adhere to these;
- heading off the creation of overlapping programmes and the duplication of facilities, particularly where these depend on state funding;
- facilitating the planning of joint initiatives that maximise the value obtained for limited funding available from the state; and

- increasing public awareness of opportunities to study through OS and popularising this approach.

Furthermore, detailed policy documents can provide a basis for: mobilising resources from donors and the private sector to pursue agreed priorities; adjudicating between competing interests; and denying requests to fund unplanned or ad hoc developments.

Lentell (2004, p. 249) argues that the lack of clear government policies for ODL may be the result of "confusion and uncertainty about the relationship between open learning – as a philosophy of education ... – and distance education as a delivery strategy." This lack of clarity is understandable given the reverence for the traditional that permeates many schools (and even higher education institutions) and shapes the outlook of their teaching staff. In such an environment, it is not surprising that those who have risen through the ranks in the conventional system should demonstrate suspicion of the technological and procedural changes required for teaching at a distance. However, the concept of open learning challenges the ideology of academia at a more fundamental and philosophical level, as well as undermining the traditional basis of authority in schools. In addition, the historical preoccupation of education providers has been with preparing young people for adulthood in general and the labour market in particular. Under such circumstances, it is not surprising that policy formulation for non-traditional learners has taken a back seat in education ministries and school boards.

HOW SHOULD OS POLICIES BE DEVELOPED?

It is helpful to think of policy formulation and implementation as a cyclical and iterative process rather than as a once-off event (Lentell 2004, p. 253). Figure 2.1 on next page illustrates the stages in this cycle and highlights opportunities for involving different actors in the process.

1. Identifying issues and defining problems

By defining the problems in the schooling system as a whole, policy-makers will also be anticipating the OS strategies for addressing these problems, and thereby also clarifying where these initiatives fit in the larger OS paradigm (see Chapter 1, Introduction). Policy formulation does not take place in a vacuum, but responds to perceived problems rooted in the specifics of a local, state, regional or national context. In developing OS policy, it is essential to start from where things are at present.

In practice, almost all countries will already have some form of ODL provision, which should serve as a starting point for reflection about policy proposals. Even if government does not support ODL or OS programmes directly, it is likely they will be found in the private sector, sometimes as an extension of regional or international institutions. The existing situation on the ground is likely to determine the central focus of government policy:

- Where there is no OS provision, then government will wish to foster the development of institutions capable of providing appropriate programmes at this level.
- Where the private sector has entered the market by setting up open schools or where public institutions are providing a poor service, government policy may concentrate on protecting the interests of learners by ensuring minimum quality standards through regulatory measures.
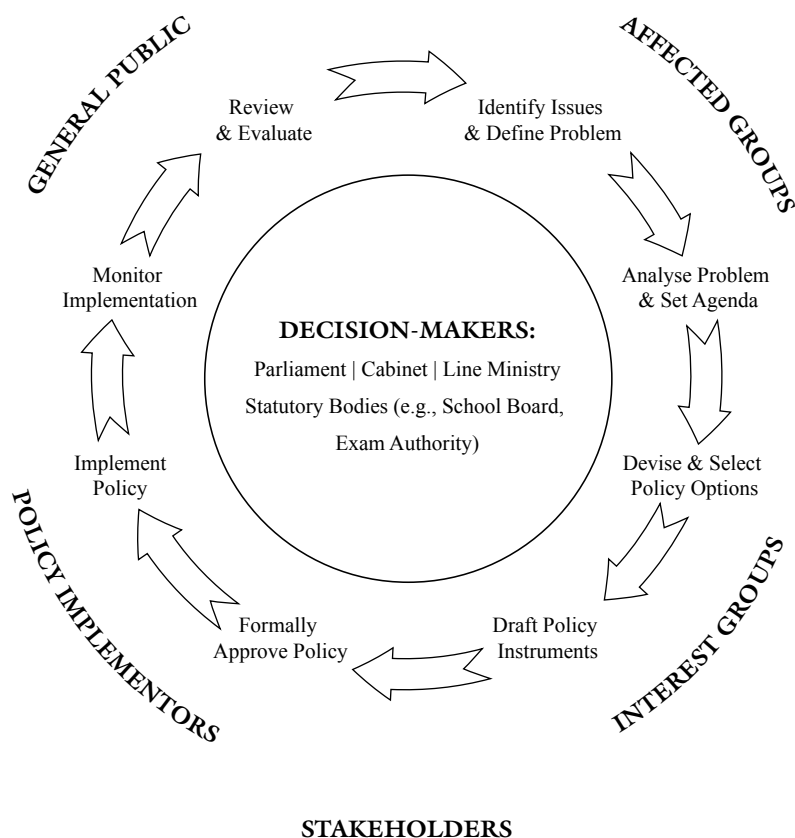
Figure 2.1: The policy cycle in open schooling.

While governments are responsible for the formal approval of policy, they do not have a monopoly on initiating the process. In many cases, it is only after years of lobbying by affected groups and those working with them on the ground that governments acknowledge the need to formulate a set of principles for dealing with the issues identified. Civil society groups – community-based organisations, teachers' unions, professional associations or adult education NGOs – have a critical role to play in raising public awareness and exerting pressure on governments to put in place appropriate policies for OS.

2. Analysing the issues and setting an agenda

Once a problem has been recognised, some formal mechanism should be set up for taking the process forward. In many countries, this is likely to take the form of a working group, task force, commission or think tank. However, in some Commonwealth countries, local custom dictates more traditional forms of consultation, such as the *indaba*, *panchayat* or town meeting. In constituting such bodies, the intention should be to include as many affected individuals as practical or, alternatively, spokespersons from bodies representing those affected by the problem. It may also be worthwhile to draw upon international expertise if it is available. In addition, where there is insufficient internal capacity for researching the situation on the ground and reviewing international best practice to

identify the options for introducing, improving or expanding OS, provision should be made for commissioning external consultants.

Public acceptance of a policy depends largely on the level of input from stakeholders. This highlights the importance of consultative processes, both formal and informal. However, enabling those affected by a problem to have real input into policy formulation is not straightforward. In many cases, the target groups for OS programmes include those who have been marginalised in the existing education system. By definition, such people have only low public visibility and limited opportunity or capacity to voice their needs. Moreover, formal mechanisms for consultation are all too often taken over by politicians or special-interest groups who use the consultation mode as a forum to lobby for a particular point of view. Research may be a better way to assess the situation on the ground and to elicit the preferences of those directly affected by a problem, particularly when qualitative and participative methods are used.

3. Selecting from a range of policy options

The policy analysis stage of the cycle is likely to throw up a number of options for addressing the problems identified, drawn from both local custom and international best practice. The individuals or body charged with devising policy proposals will need to make decisions about which of those options should be recommended for adoption, based upon a set of agreed values, principles or goals. It is critical to involve those who will be responsible for implementing the policy at this stage. Although some would argue that bodies such as teachers' unions and boards of management for existing institutions may seek to protect their own interests, in reality these groups are best positioned to know what type of initiatives are likely to work on the ground. There is little point in putting in place a policy that cannot be implemented.

A policy document on its own is unlikely to have much impact in terms of fostering OS initiatives unless adequate resources have been allocated for this purpose. Since this form of educational delivery often requires substantial, long-term investments, it is prudent to include in the policy-formulating process those individuals responsible for financial planning. Before substantive issues can be finalised, the financial aspects of all proposals must be carefully costed. Then extensive consultation, co-ordination and negotiation should take place between relevant units in the line ministry, as well as between affected ministries and other bodies. These steps should ensure that a proposal is not dismissed by Treasury before being put into effect.

4. Drafting policy instruments

Depending on the nature of the proposal, putting new policy into operation will require changes to existing structures or the creation of new structures:

- In some cases, internal restructuring within a particular ministry may be sufficient to accommodate new policy, though plans for such changes may first need to be approved by an external body such as a Department of Public Service or a Public Service Commission.
- Alternatively, if a new body, institution or agency is to be created, primary legislation may be required.

When policy proposals seek to regulate the activities of ODL institutions, these regulations must be drafted in accordance with existing legal provisions.

5. Decision-making

It is essential to involve political office bearers in the policy formulation process from the outset, and proposals are likely to have been submitted for informal approval at various stages along the way. However, before a policy can come into effect, it must undergo a formal endorsement procedure at board, ministerial, cabinet or parliamentary level, depending on the nature of the proposals. For those who will be charged with implementing the policy, this should be seen as an opportunity to inform politicians about the rationale for the policy and about the perceived advantages of the proposed solutions. Given the generally low status of ODL in public discourse, it is essential to convince the political leadership of the potential benefits of OS.

6. Implementing new policies

Responsibility for pre-tertiary education resides at different levels of government, varying from country to country. In many small states of the Commonwealth, policy is made at the national level, though implementation is often delegated to education officials who come under the direction of regional or district authorities. By contrast, in countries with a federal government, a broad policy framework is typically drawn up at the national level, while state or provincial ministries of education are involved in preparing detailed policy guidelines and elected boards are given ultimate responsibility for administering the education system in a particular school district. Typically, the running of each school or college is also subject to oversight by a board of governors made up of parents, staff and representatives of the local community. Ideally, the policies set at each level should complement those formulated by higher bodies.

However, as each of these bodies is likely to have different concerns and priorities, there is potential for tension and conflict between the different levels of policy-making. The authority and competence of each level to determine policy matters is normally set out in the legal documents under which it was established. In many cases, relations between different levels of governance are regulated by the principle of "subsidiarity," which prescribes that decisions should be taken at the lowest level appropriate to the matter at hand or as close as possible to those affected by the problem. Whereas government policies properly deal with the broad direction for ODL within the general framework for developing pre-tertiary education and training, decisions on how policies should be operationalised are best left to the institutions, bodies or individuals charged with their implementation (Lentell 2004, pp. 253–256).

Policies can hamper the development of OS as well as enabling it. Where national, provincial, state and/or district policies are too specific, it restricts the options available for ODL institutions to adapt their operations to changing technologies and market conditions or to deliver programmes as efficiently and effectively as possible. For example, in 2008 the Government of the Kingdom of Lesotho introduced legislation to update its Education Act, with a primary aim of ensuring minimum quality standards and regulating the activities of education institutions. However, in the legislation's draft form, the requirements proposed for registering as an education provider were so onerous as to make it virtually impossible for the Lesotho Distance Teaching Centre to provide face-to-face tutorials at satellite centres. If the draft legislation had not been amended, it would have frustrated the goal of the draft National Policy for ODL, which aims to improve access to education by increasing the number of tutorial and study centres around the country.

7 and 8. Monitoring, reviewing and evaluating policies

Just as ODL programmes are monitored and evaluated at the organisational level, so too should governments review their policies for this sub-sector. Regular monitoring is normally delegated to the institutions, agencies or individuals charged with implementing policies, and those bodies are required to produce annual reports to ensure accountability to government, parliament and the public.

Intermittent evaluations typically involve external expertise or consultants providing an impartial assessment of the effectiveness of interventions. It is important for the findings of such reviews to be fed back into the formulation of refined policies to ensure that the issues originally identified have been addressed and that new and unanticipated problems have not arisen.

WHAT SHOULD BE INCLUDED IN A POLICY FOR OS?

To be effective, a policy document for OS should include the following elements:

- *background* – It is important to outline the context in which the document has been developed. This means including a description of the current situation with respect to conventional and ODL programmes, an analysis of the problems that exist, the rationale for developing the policy and a description of its intended outcomes. As open schools must operate within the wider framework of the education system as a whole, this section should also include references to existing policy documents and define relationships with established bodies, such as an examinations council or standard-setting authority.

- *definition of terms* – Like many specialised fields, ODL is permeated with jargon, so the policy document should provide short explanations of key terminology. This will help to ensure that both those responsible for making policy decisions and those charged with implementing them share a common understanding.

- *statement of principles* – To provide guidance on how government should respond to situations as they arise, the policy document should outline a set of general values, goals or principles.

- *application and scope* – The policy document should make clear who is likely to be affected by the policy. This is particularly important when the policy will be restricted to a particular target group in order to avoid unintended consequences.

- *date of commencement* – The policy document should specify the date from which the new or revised policy will come into effect.

- *responsibilities* – The policy document should include details of who is responsible for providing ongoing governance and direction, implementing the policy and monitoring its impact.

- *funding* – Arguably, the most important means at a government's disposal to facilitate the development and expansion of OS are the financial arrangements adopted for supporting the sub-sector. For this reason, the policy document should outline these arrangements clearly.

Freeman (2004) suggests a range of critical issues for consideration by decision-makers when formulating policy and preparing plans for ODL provision, including:

- identifying target populations and their needs;

- choosing from among different types of ODL systems;

- selecting the most appropriate technologies for programme delivery;
- costing ODL programmes and business planning for ODL institutions;
- acquiring, adapting or developing self-study materials;
- providing academic tutoring and other forms of student support;
- recruiting and enrolling students;
- assessing student performance;
- administering and managing the ODL system; and
- assuring quality.

It would be difficult to improve upon Freeman's comprehensive treatment of these issues, which is as appropriate for OS as it is for ODL in general. Therefore, the remainder of this chapter offers insights and advice drawn from the authors' experience for those charged with formulating government policy at national, state and provincial levels.

SOME PRACTICAL TIPS FOR EFFECTIVE POLICIES

Put the beneficiaries at the forefront

The target groups to be served by an open school must be the first preoccupation of policy-makers. In most cases, ODL programmes at pre-tertiary level are designed to benefit those who are not being served adequately, or at all, by the existing education system. Such marginalisation is usually the result of very real challenges or systemic failures that are not amenable to simple solutions. Typically, those who are experiencing educational disadvantage are materially disadvantaged as well. The structural issues surrounding poverty make it difficult for those affected to overcome social, economic, physical and psychological conditions.

Frequently, the intended beneficiaries will be suspicious (perhaps for good reasons) that this new OS system is "second class" – an afterthought or to appease people who have in fact been denied the right to equal education. Convincing arguments can be made that education programmes for the poor actually need to be better resourced and of higher quality than those for other strata in society if they are to succeed in ensuring equity and reducing poverty. *Poor people do not need poor programmes*. Therefore, open schools must demonstrate that the education they provide is equivalent to or better than that available in conventional institutions. In addition to providing quality programmes, open schools are under pressure to produce quick results, and both cost money.

Technology is not the best starting point

Choices must be made about the media that will be used to deliver OS programmes, though the general tendency is to use as many different channels of communication as practicable. "New" technologies can be used on their own, but they can also enhance and support "old" technologies such as print and audio. However, ODL cannot succeed as a technology-driven enterprise. People and institutions are still much more important. As noted above, the first concern must be with the learner, especially the disadvantaged or marginalised learner. Ironically, the advantage brought by new technology may come more from its capacity to enable greater efficiency in the organisation and administration of education rather than to achieve improved communication between tutors and learners, though that will come later.

To be useful, electronic media must be accessible to students. Access to the Internet and e-mail remains a problem in many Commonwealth countries, but we need to explore how far this technology can be exploited and to prepare the ground for more extensive access. Open schools should, in the meantime, be geared up to use information and communication technology (ICT) for those learners who do find ways of gaining access. In fact, together with others actors in both the public and the private sectors, open schools have a responsibility to increase access to the Internet, for instance through community-level centres of various kinds. Again, if one thinks about an education system as an integrated whole, then the roll-out of computers and Internet facilities to schools, libraries and community centres need not benefit only full-time learners in conventional schools. A range of other technologies – radio and television broadcasts, pre-recorded audio- and video content, mobile/cell phones – also have a role to play in delivering educational content as well as in improving communication between open schools and their learners.

Although it is new ICTs that give ODL its cachet and, hopefully, a competitive advantage over conventional education, policy-makers also need to consider how much face-to-face interaction is possible (and affordable) to organise. Learners at the pre-tertiary level may not have the motivation or basic skills (reading levels, language ability or study skills) to progress in their studies without a substantial amount of support from a parent, facilitator or tutor. The lower the educational level and the younger the target learners, the more face-to-face or other interactive support is needed, and this will have significant implications for the cost of provision. A parent can play this facilitating role in some circumstances, as has been shown in home schooling models. This does not mean, however, that the tutor (or whatever he or she may be called) should resort to traditional talk-and-chalk teaching – an approach that is likely to be disastrous. Rather, it is important to inculcate the role of a facilitator who helps learners make best use of the learning opportunities that have been developed in other media. Bringing about such cultural change in traditionally trained teachers is not always easy.

Print on paper is still the most widely used technology for conveying the bulk of what needs to be learned, though it may now be more costly than electronic forms of content delivery (Du Vivier [in press]). Most open schools, we can hope, have moved away from traditional textbooks towards interactive learning guides. These take longer to produce than textbooks do and thus incur additional costs. However, with low-entry subjects where learner numbers do not justify expenditure for developing self-contained materials, it may be necessary to resort to study guides that wrap around an existing textbook. Adaptation of materials from other countries is also an option, but few OS do so, for reasons that are not clear. Perhaps the time required to adapt generic materials to the local context makes this approach less cost-effective, but there is also a tendency for academics to reject teaching resources if they are "not invented here."

Saving money is not the main thing either

While OS holds out the potential to reduce the unit costs of education, there is no guarantee that it will do so in all cases (Rumble 1997; Butcher and Roberts 2004; Du Vivier 2007). Nevertheless, there is a widespread assumption that OS should be cheaper than other forms of education. Good ODL provision requires upfront investments in staff training, materials development, technology, administration, research and marketing. Usually, significant economies of scale only begin to emerge when learner numbers go up into the thousands, though there are too many variables involved in such calculations to allow for this rule-of-thumb to be applied in all cases. Typically, OS will produce only a modest reduction in costs when compared to conventional education, though in

some instances the savings can be considerable. However, if the conditions are not right, the unit costs of an open school can be higher than for classroom-based studies. It is, therefore, fatal to start an OS programme in the belief that it will enable government to reduce the amount spent on education.

That said, when government policies emphasise the need to achieve savings, this can be useful in shaping cost-efficient and cost-effective institutions. Where open schools have their origins in civil or public service structures, there is a tendency to adopt budgeting approaches wherein expenditure is only indirectly related to the number of learners enrolled for studies. Traditional models and norms for staffing in the public service are frequently used in drawing up post structures[1] and staff establishments for such bodies. In addition, narrowly defined job descriptions and lack of flexibility in hiring and firing can lead to overstaffing and relatively low levels of productivity. Continuing to prop up such ODL units through incremental increases in their core funding without reference to outputs can stifle future development.

However, if government policy links financial support for an open school to the number of full-time-equivalent learners it serves, then this provides an incentive to increase enrolments and reduce unit costs. Systems where payment is contingent upon results have been decried by education administrators. Yet, introducing a funding formula in which the number of learner examination passes influences the level of financial resources an ODL institution receives can often contribute to improvements in the quality of services offered. Providing a separate stream of funding to meet the initial development costs for new courses is an effective means of expanding the range of subject offerings. In addition, setting expenditure targets for an open school as a proportion of the amount government spends on conventional, classroom-based education can lead to a leaner and more focused institution that seeks to maximise economies of scale.

In most countries, the school system has evolved out of a patchwork of institutions supported by religious and philanthropic bodies, private sector interests and the state itself. Although distance-teaching at post-secondary level can be a commercial proposition, as shown by the emergence of several for-profit institutions over the last decade (Rumble and Latchem 2004, pp. 129–132), there are almost no examples of second-level open schools that are capable of surviving without government subsidies. However, should government wish to promote participation by non-state institutions in the provision of OS, funding policy can be an effective way of achieving this goal. When grants, subsidies or bursaries are paid to open schools on the same basis as funding is provided to conventional schools, then teaching and learning through ODL methods become an attractive option for investors because the unit costs tend to be lower.

Nevertheless, policy-makers should beware the pitfalls of this approach. If the emphasis of government policy is primarily on reducing the unit costs of providing education, this may have an impact on other goals for the OS sub-sector. Such an approach, for instance, is likely to affect:

- *subject choice* – The need to achieve economies of scale is likely to mean that study materials will not be developed for low-entry courses, such as minority languages or technical/vocational subjects, even though these may be desirable for achieving social equity or ensuring that learners are better prepared for the labour market.

- *geographical spread* – The potential for extending the institution's reach by opening new tutorial centres will be extremely limited, as additional centres are likely to lead

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1. A "post structure," in human resources, refers to the rules that determine the grading and progression of staff in a public service body.

to lower student/tutor ratios and increased costs per student (see, for example, the case of *Telescundaria Mexico* outlined in Rumble and Koul 2007, pp. 19–21).

- *affordability* – Affordable access to education is often an important goal of government policy, as ODL may be the most cost-effective option to provide access for groups who would be very expensive to include by conventional means. On the surface, OS may be the only practicable means of providing quality education to some disadvantaged groups, especially in very remote areas. However, if the government's OS policy specifies targets for cost recovery, this can lead to fee increases that exclude the economically disadvantaged learners the programme was intended to benefit.

Conversely, where government OS policies seek to address alternative needs – such as ensuring equitable access, increasing participation rates or improving quality – achieving these is likely to drive up costs.

Sorry, but open schooling is not a quick-fix solution

The needs may be pressing, but ODL usually cannot offer an instant solution, at least not for learning programmes that are equivalent to those provided in conventional schools (Freeman 2004, p. 12). As noted above, legislation may be required to establish the necessary structures to implement policy. Putting in place proper managerial, administrative and technical capacity takes a year or more. New or refurbished buildings will also be needed. Producing a set of OS course materials from scratch usually takes 18 months at a minimum (as some of us have learned to our cost, having advertised courses only to find that all the materials were not available on time). When learners do not receive the service they expect, this can cause a public relations disaster that can take years to recover from.

On the whole, open schools that have remained part of a civil or public service structure do not do very well. Given the high standards of management that are required, and the consequences of protracted decision-making processes and convoluted procurement procedures, it is probably best for an open school to have as much autonomy as can be arranged. Good governance can be assured through the appointment of an independent management committee or board with substantive powers to approve plans, review budgets and ensure that accounts are properly audited. Accountability to government, parliament and the public in general is usually achieved through the publication of annual reports and statistical digests. In addition, funding should ideally be subject to a performance agreement between government and the institution's board.

Clearly then, OS is not a game for amateurs. The levels of investment required are too high, the technologies used too sophisticated and the decisions taken too risky for mediocre management. Managers capable of producing results at that level come at an unavoidable cost because such expertise is scarce. Key staff members need to receive professional training in ODL, and several higher education institutions now offer distance study programmes for this purpose. Certain open schools have developed expertise in this specialised field, so that short-term attachments or study visits are now an effective option for transferring skills to staff from nascent OS institutions. Exchanges, partnerships or peer-learning programmes, as well as links with international associations, are a very good idea and have proved to be productive in a number of countries. In addition, if they are to retain specialised staff, open schools need to develop career paths that allow for promotion and advancement.

Integration with the education system as a whole

The introduction or expansion of OS will almost certainly cause some disturbance to the existing education system. For example, since its establishment in 1997, the Namibian College of Open Learning (see Chapter 5) has been so effective in attracting students that over 40% of all candidates for the senior secondary certificate examination now study with the College (NAMCOL *Statistical Digest 2007*, pp. 14–15). Because of the lack of capacity in conventional schools, these learners have no other option for completing their education at this level. However, because NAMCOL learners sit for the same examinations as their classroom-based counterparts, some regional education offices are now struggling to provide venues, desks and chairs for these additional candidates.

Open schools also need to employ teachers on a part-time or contract basis to act as tutors, write materials, mark assignments and do other work, but few countries have a reserve pool of qualified academic staff who can be employed for this purpose. These additional duties are going to be a matter of concern for school authorities who, understandably, want to ensure that learners in the classroom receive a teacher's full attention. Similarly, in remote areas, schools may be the only suitable place for distance learners to gather for contact sessions. Ensuring that teachers receive permission to carry out part-time work for an open school and that classroom facilities are made available for use outside of regular school hours require policy directives at government level. Agreements should also be concluded at the local level to allay fears about teachers neglecting their duties or outsiders damaging school buildings. Without such agreements and understandings, the expected symbiosis may not be achieved or sustained – at a cost to open schools and their learners.

To garner support from education officials, it may be worthwhile for open schools to highlight how problems in conventional classrooms can simultaneously be reduced by the application of OS methods. Every country in the world is struggling to improve the quality of its education system, and the paper, audio-visual and electronic resources produced by open schools have potential to enhance the quality of classroom-based teaching. Providing such materials to learners in conventional schools is likely to reduce the unit costs of production and raise the status of the open school that supplies them. Likewise, conventional institutions may be able to solve timetabling or access problems by allowing learners to study some subjects through open schools. This is now common practice in many higher education institutions, so why should it not be allowed at pre-tertiary level? Schools may not be able to offer certain subjects because they lack qualified teachers or it is too expensive to arrange classes for small groups of learners. However, allowing or encouraging conventional learners to enrol with an OS institution to study these subjects enables smaller schools and schools in remote areas to provide a flexible curriculum. By demonstrating the potential for symbiosis and partnership between open and conventional schools, it is possible to build consensus among policy-makers.

CONCLUSION

In this paper, we have presented an overview of the process of formulating government polices for open schools. We pointed out some of the pitfalls to be avoided, and we highlighted the potential for open schools not only to give disadvantaged learners increased access to quality education, but also to improve standards of formal education in the classroom. The policies formulated and implemented at the governmental level

play a key role in creating an enabling environment and shaping the type of education provision. However, as Rumble and Latchem (2004, p. 136) note:

> "The one certainty facing policy-makers is that the environment is changing, and that this will impact fundamentally on the structures through which distance education is delivered."

To address new challenges as they emerge, government policies must articulate broad goals and general principles. Both ODL institutions in general and open schools in particular must be given the autonomy and flexibility to adapt their operations to changing conditions and emerging technologies so that they can continue to provide efficient and effective services.

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CHAPTER 3

USING INFORMATION AND COMMUNICATION TECHNOLOGIES IN OPEN SCHOOLING

Margaret Haughey and Brian Stewart

Sir John Daniel, the President of the Commonwealth of Learning (COL), in his opening comments to workshop participants gathered in Vancouver in February 2008 to develop an open school handbook, reiterated the urgent issues underlying the need for secondary education (Daniel 2008). Countries are "still struggling to create the infrastructure for primary education." Access to secondary education continues to be inequitable, "especially in rural areas, with girls being particularly disadvantaged." As well, the numbers of potential primary graduates seeking secondary education are extremely high and severely challenge the budget of any country.

> "As governments stretch their resources to make progress towards Universal Primary Education by 2015, it is unlikely that expansion of traditional secondary provision will be a key priority. And even if one new secondary school were to be built every month for the next 10 years, the increased demand will not be met. What choices do policy makers have?" (Daniel 2008)

The limited primary infrastructures and inadequate economic resources to provide a quality secondary schooling infrastructure to meet this burgeoning population of new learners is a serious challenge for government policy-makers. The most frequently discussed alternative is non-conventional education through a system such as open schooling. Daniel, in his address to the workshop participants, highlighted the important features of open schooling: flexibility, openness, unconventional pedagogies and use of information and communication technology (ICT). Open schooling (OS) is seen as having the potential to:

- allow more learners to complete their education;
- encourage the education of those who are not able to attend conventional education, such as learners with disabilities, working youth, young mothers and street children; and

- provide a form of education that could also address young adults' employability and lifelong learning needs.

Open schooling can come in many forms depending on which of its attributes – flexibility, openness, pedagogy or technology – is most strongly emphasised. In this it can provide some flexibility for policy-makers in responding to this important secondary schooling challenge.

In this chapter we explore how one aspect of OS, the use of ICT, can assist government policy-makers in meeting the challenge of quality secondary education provision.

BACKGROUND

The benefits of ICT in OS

One of the major benefits of ICT is its ability to enhance the quality of education provided to learners in an OS environment. It is essential that in planning for the inclusion of OS that this primary focus on providing quality support to learners not be forgotten.

Because ICT can be used to provide access to high quality resources, all who can access the materials can benefit from the same level of information. Access may require that the information be on CD-ROMs rather than on a Web server, but all students who have access to the CDs and a computer can acquire the same high quality information. Through access to the Web: learners can become involved in instruction by communicating with other learners; the provision of courses can be extended to more learners; and the pedagogical knowledge of local teachers can be enhanced. Through ICT, students can provide information from their local area, which can then be used to extend knowledge generally. Use of ICT can also increase students' involvement in and motivation for learning by providing for greater interaction among learners, allowing those in one location to discuss concerns and get advice from others in equally remote situations. For example, students can receive advice and reminders through mobile phone text messaging. This increase in access to quality pedagogical resources and the opportunity to take greater responsibility for one's own learning are seen as major factors in increasing student retention and success in school.

For secondary school students, the local learning centre will remain a major source of advice and assistance. Yet, while it is likely to be where the student will access ICT resources, the student can also participate through e-mail or mobile phone with learners elsewhere and receive expert guidance on matters that cannot be solved locally.

COL has already completed a major study of two OS initiatives, National Institute of Open Schooling (NIOS) in India and Namibian College of Open Learning (NAMCOL) in Namibia (Rumble and Koul 2007). In each example, issues had to be overcome and the possibilities achieved through the use of OS. In the New Partnership for Africa's Development (NEPAD), the e-Africa Commission is co-ordinating a major project concerned with teaching ICT skills to African primary and secondary school students and with enhancing the quality of education through ICT use. Called the NEPAD e-Schools Initiative, the initial demo project is close to completion and has provided valuable lessons on implementing an ICT infrastructure (Farrell et al. 2007). We discuss this later in the chapter. In addition, many countries are undertaking initiatives to introduce ICT into schools through school system management and administration and in regular

classroom instruction. These examples also provide us with ways to think about including ICT in whatever version of OS we are seeking to achieve.

The challenges of ICT in OS

While the use of ICT in the development of OS provides many possibilities for expanding educational opportunities and enhancing the quality of the educational experience, it is often seen as being *the* single quick response to a variety of issues and challenges. In this chapter we would like to dissuade readers of that view of ICT and instead provide practical advice about overcoming the challenges in implementing this most intriguing of options. First, it is necessary to begin with a plan. Knowing where one is headed is important, but knowing how to cope with challenges and changes along the way is equally essential. The world of digital technologies is changing rapidly as more people explore its capabilities and new innovations make obsolete what seemed like a state-of-the art response just a year or so previously. Today, earlier technologies such as television and radio now use Internet technologies to reach customers, and technologies such as CD-ROMs (which largely replaced vinyl music records) are now being replaced by online technologies. Telephone and telephone wires are being replaced by the cellphone and wireless connections using satellites, and even the telephone is no longer used just for transmitting and receiving voice but has also become a major mobile device for a widening range of text and multimedia services.

The biggest challenge affecting organisations that seek to employ ICT in OS is how to have a solid plan and still remain responsive to these constant innovations. Almost of equal importance is that the resources for implementation are likely finite. All plans have to take into consideration their own socio-cultural, economic and political circumstances.

That said, there are some advantages to *not* being involved at the early implementation stage, for example:

- One can join when the initial prototypes have been fully tested and the more robust versions are now mainstreamed.
- One can use the more stable earlier versions rather than the latest versions.
- Delayed adoption means that implementation issues will already be well documented, difficulties more easily avoided and new strategies for using the technology developed.

ISSUES AND SOLUTIONS IN USING ICT FOR OS

In this chapter we identify common challenges and provide rubrics to guide decision-making about ICT in OS. We have chosen to group our thinking under four major headings and within each to identify issues and provide possible responses. We begin with policy development, since the knowledge of the context is crucial for practice. From there we address infrastructure, educational and human resource issues which require decisions.

Of necessity, we have kept this chapter at a fairly high level of generality as we strongly support the findings identified by Farrell et al. (2007) in the NEPAD e-Schools demo project report that "a review of best practices gleaned from similar projects in Africa and elsewhere, plus a better understanding of current related projects [in similar situations" provides the best set of assumptions about ICT use.

It is therefore essential that government policy-makers review research studies (such as the Rumble and Koul study of OS) and ensure they keep up-to-date with current projects in their own and similar countries. More specifically, Rumble and Koul recommend the following (2007, p. 11):

> "There needs to be a local analysis of the context within which an ICT initiative is introduced based on factors that have been shown to influence the probability of the intervention being successful, including
>
> - National development and educational goals
> - National ICT in education policy framework and implementation plans
> - Level and commitment of leadership to the initiative
> - Commitment to gender equity
> - Adequacy of infrastructure and access to it
> - Opportunities for collaboration with other organisations
> - Adequacy of human resource capacity
> - Adequacy of fiscal resources
> - Availability of appropriate learning content
> - Government procurement regulations
> - Teacher, student, administrator and community attitudes towards ICT use on education
> - Sustainability of the initiative"

The authors of the NEPAD e-Schools demo project noted that the demonstration project had had an immediate impact by raising awareness of the importance of a national ICT policy in relation to their educational plans.

POLICY ISSUES

Effective ICT policy development requires the local analysis referred to above. While much can be gained from examining others' policies, knowledge of the specific needs and country context are crucial to the development of an effective policy infrastructure. Nationally, policy in relation to ICT occurs at a number of different levels and needs to have sustained support across a range of government, public and private sectors. An ICT policy can no longer be confined to the provision of telecommunications via the Internet. Such a policy must address questions of access and civil liberties. Access questions are about principles such as, Is access for everyone or only those who can pay? Questions concerning civil liberties include: Who will have the right to freedom of expression? How will individual privacy be protected? How will issues of intellectual property rights be handled? How will the privileges of large multinational corporations be balanced with the desire to have ICT accessible to all?

At the same time as these principles are brought into relief, ICT policy issues cross boundaries to affect other areas of government: Will the government use ICT to provide information on health issues? What is the effect of ICT on trade and industry? ICT policy affects employment practices, consumer spending and traditional cultural preferences. Its immediacy challenges control of information previously handled by telecommunications policies concerning radio and television.

Furthermore, as a recent survey of capacity-building in ICT policy and regulation in Africa, the Caribbean and the Pacific pointed out, the skills required are not only in policy development but also in policy regulation (McNamara et al. 2008). This "analysis of policy and regulatory issues" involves adapting policy to changing local and global conditions and advising policy-makers on realistic options that will help create "appropriate enabling environments for expanding affordable access to ICT in developing countries" (McNamara et al. 2008, p. 4).

The development of ICT policy is an increasingly sophisticated and complex arena. The policy must be:

- coherent;
- related to national reform agendas;
- principled in its approach to the larger issues raised above;
- flexible in adapting to convergences in ICT such as between infrastructure and service; and
- adaptable to the changing conditions of ICT provision.

In terms of the development of ICT policy in relation to OS, it is important to address a similar range of issues that speak first to the purposes of OS and the use of ICT in educational provision, and then more directly to the target population, the type of system chosen, the business plan, system management, and monitoring and quality assurance. At another level are policy issues of implementation.

INFRASTRUCTURE ISSUES

There is no single answer to the question of what a reasonable online education infrastructure costs. To get an understanding why such a simple question does not yield an equally simple answer it may help to use the analogous question of what is the cost of a reasonable hospital? As with all complex problems, the economist's mantra of "it depends" comes into usage. Therefore, the best that can be achieved in the absence of a definitive answer is to provide a framework that can yield a useable range of estimates and assist the planning process.

The framework to determine the infrastructure costs and resource requirements should be sufficiently flexible and useable to allow relatively efficient answers to conceptual questions and provide a direction for further investigation to enhance the detail for more rigorous planning.

The following framework provides the main factors to consider when planning an OS infrastructure.

Infrastructure planning framework

The first questions to be asked are what services are required, how many users will be provided for within a given timeframe, and to what level such services should be provided. These may appear simpler to answer than they really are. To effectively plan for all levels, it takes some understanding of the "IT stack" (infrastructure components) that support the user services.

Upon clarification of the desired services, planning can begin starting at Level 1 and then proceeding to Level 6:

- Level 1 – Physical data centre
- Level 2 – Computing hardware
- Level 3 – Computing core software (security, database, operating systems)
- Level 4 – Applications – the programmes users will use,
- Level 5 – Interoperability – the integration of applications and core software
- Level 6 – Support – the support of all of the five levels

Level 1 – Physical data centre

The basic infrastructure starts with physical space and follows existing engineering construction factors in terms of space/cost determination. The cost of either renting or building a space is subject to local economic conditions and there is no general cost principle to be advocated here. The difference in creating a data centre is in either the conversion of existing space or the construction of a purpose-built utility. The key considerations are:

- sufficient space for equipment
- power – uninterrupted supply
- network connectivity
- environmental control – humidity and temperature
- fire suppression
- physical security and access control

There are general heuristics for determining the appropriate size of a data centre. Once the number of computer servers is determined, the power consumption and environmental controls are derivable from the specifications of the computers themselves, in terms of their rated power consumption and heat generation. If continuous service is desired, without interruptions due to power surge, spikes and brownouts, additional equipment is necessary to ensure steady power supply. In some cases, this may also require a back-up generator.

Network connectivity is determined by the estimated number of users and the bandwidth requirement such users will need. The choice of content has a very large impact on network bandwidth as media-rich content that contains, graphics, videos and audios requires significantly more resources. For example, an average text file would be a few hundred kilobytes, whereas an average three-minute video file would be 10 times the size. There are technologies such as streaming servers that optimise network usage to facilitate access to media-rich files. However, they cannot overcome the lack of bandwidth and they simply force everyone to wait because the media is delivered in segments. The bandwidth requirement may be the largest constraint that impacts the design and delivery of course content.

Physical security requires that the site not be open to unauthorised access and that the building be safe. In addition, the site must have fire suppression capabilities to protect equipment in the event of an electrical fire.

A dedicated data centre may not be required if the levels above the physical infrastructure are not extensive and a well-ventilated space with good network connectivity and an uninterrupted power supply will prove adequate. It is a matter of scale and service provision.

Accessibility – A key enabler of ICT is its ability to provide scalable solutions. A teacher teaching a class is scalable to the extent of the size of a room or space that limits the number of people who can attend the class. These spaces can fit from ten to hundreds of attendees at a given class. However, they require that all attendees be available at the designated space and time to use the opportunity. With ICT, the space–time barrier and the limitations of room capacity are removed. There is essentially no limit to the number of people who can access an online course or resource. Scaling is one of the strengths of technology-enabled learning. The initial investment in it can be amortised over a very large number of users.

Another related and interesting benefit of online learning is that it also allows for the provision of educational courses and programmes that could not be economically justified in any single centre. The "long tail" as described by Anderson (2008) demonstrates very effectively where the Internet has created scale economies because of the scope of operation that allows the formation of virtual communities of a critical mass to enable economically sustainable service provision. In educational terms, the provision of programmes that would only attract small numbers in any particular locale can, when offered through online asynchronous access, allow students to aggregate to the threshold that will allow a course or programme to be offered. For higher level or specialist courses, this may be the only means to make them available to the general population. As an example, in Alberta, Canada, the K–12 system uses videoconferencing of calculus classes to reach rural communities that cannot provide these classes in their own schools.

Wireless – Distribution of learning materials using wireless technologies, whether through local wireless ports or through satellite connection or cellular networks such as mobile phones, has been subject to greater bandwidth constraints than wired connectivity. Significant improvements in wireless standards are raising the baseline capabilities of wireless to provide an acceptable level of service for most applications. Now, only applications that require significant data (such as rich media or large quantitative data sets often used in research) would find wireless unworkable.

A caution is that wireless security still lags behind its wired counterpart and can leave a wireless network infrastructure open to privacy compromises.

One main advantage of wireless infrastructures is that it does not need to have wires connecting all points. "Wireless" provides flexibility at the school level and, through satellite or point-to-point microwave technologies, at the between-schools level. Unfortunately, wires cannot be completely done without. Broadcasting packets of information must still be done through wires taking the packets from the computer server and moving them to the broadcasting component, whether this is a tower or a wireless router.

The "One Laptop Per Child"[1] initiative has sparked several parallel initiatives to provide cheap end-user hardware that works with mesh networking. A mesh is a relay of connectivity, with each laptop piggy-backing on its neighbour to get access to the network. By doing so, it extends the network out from the central point of relay.

An effective architecture for remote areas where wired power and network may be unavailable is to use relay towers that are powered by solar or wind energy. Supported by a battery to keep continuous service, relay towers allow mesh communities to relay to each other. By employing this technology, remote areas can have full access to the networked environment in a very cost- and time-effective manner.

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1. One Laptop Per Child. Available at: http://laptop.org/en/participate/give-one-get-one.shtml

Level 2 – Computing hardware

Computing hardware is often the only item considered when ICT is referred to, particularly in terms of cost and schedule for operation. Indeed, the computer that any server runs on is a critical component and the service cannot operate without it. However, it is not the total requirement and in many instances is not where the majority of the work to provide a service resides. Other critical components of hardware are network routers, switches and firewalls, storage devices, and end-user workstations, laptops, mobile phones and personal digital assistants (PDA).

Having a planned architecture for the hardware can provide significant economies in both acquisition and operation. On the cost side, having equipment provided by a single manufacturer with "evergreening" (updating) agreements will significantly reduce the complexity of a given hardware configuration. Spare components can be inventoried and ready for use when replacements are needed. Also, the learning curve to support the hardware will be substantially reduced since the knowledge requirement grows geometrically with increasing complexity. Evergreening is necessary because equipment wears out either technologically or electronically, and planned replacement is essential to ensure orderly and effective operation. The currency of the hardware infrastructure is somewhat a matter of choice. Component replacement outside the manufacturer's warranty and maintenance agreements is a matter for the institution to select. A quicker replacement cycle, while beneficial in terms of speed and availability, requires increased investment, whereas a slower replacement cycle may require more personnel support.

Again there is no single answer to the choice of computing hardware. The decision should conform to the context of the hardware installation. It should be remembered, however, that having well-made hardware will provide a solid base for the deployment of software and applications and help limit the total cost of system ownership.[2] Moreover, hardware costs, driven by constant innovation and manufacturing economies of scale continue to decline.[3] A useful heuristic may be to buy the best hardware you can afford.

Level 3 – Computing core software

Core software represents the software required to run the centre. These include operating systems such as Linux, Unix and Microsoft Server. Web server (software such as the open source Apache) and database management systems (such as Oracle, Access and the open source mySQL) can also be included here. In addition, several utility software programmes are required, such as those for firewalling, collaboration, communication, file management and e-mail.

The question of what core software to use depends on the skills and abilities of the support personnel available either internally or externally to the organisation. Further to this, the choice of core software may be influenced by Level 4 applications (see below) that require specific sub-systems. For example, high-end enterprise resource planning (ERP) systems are generally engineered for the Oracle database management system and would therefore require it to be in place if the chosen application is to function. Alternatively, Level 2 hardware is not necessarily configured to work with any given operating system. Thought must therefore be given to this before selecting hardware.

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2. "Total cost of ownership" (TCO) is a concept developed in 1987 by Bill Kirwin at Gartner Group. It was designed to provide a tool for the assessment of the real costs of an ICT infrastructure, including capital and operating direct and indirect costs.

3. This steady decline in economies of scale is known as Moore's Law. See G. Moore, *Moore's Law.* Available at: www.intel.com/technology/mooreslaw/index.htm

Most software manufacturers view education very favourably because they identify the long-term benefit of brand loyalty by users, particularly those of a young age. When we are successful with a technology, we tend to stick with it. As a result, the cost charged to institutions is a fraction of the commercially available price and can often prove very competitive with open source alternatives that do not include support.

A key point is that the core software choice must be made in light of the hardware and application requirements. The choice can only be finalised once decisions are made in those areas. It is a derived selection, not a foundational one.

Level 4 – Applications

Applications are what the users want. Applications are the programmes that we all need to achieve the business objectives of our organisations: they are what we see when we want to e-mail, chat, write a letter, purchase a book or teach a class online. The choice of an application requires consideration of its usability to solve a problem. Too often application software becomes a solution in search of a problem, with designed features becoming ends rather than means. Problem definition is the critical first step to identifying the appropriate application. This definition requires a broad analysis of the institution, including business processes, degree of difficulty of adoption, degree of problem resolution, ICT infrastructure, application development path, application user community and support. Too often, solutions create more problems than they solve, mainly because of too narrow a focus of the original selection. Since every application has a footprint on the existing organisation, the larger the footprint, the greater the difficulty of realising its benefits. Thus, the greater the functionality and the broader use within the organisation, the greater is the difficulty of implementation and support.

In an educational institution, apart from having all the usual finance and human relations processes, the applications should include the:

- information management system that organises all the student data and keeps track of students' progress, the learning management system that enables students to access their course materials and to interact with their instructor;
- examinations system that manages the examinations process; and
- student support systems such as library access.

A Web interface where students can contact the appropriate service and access their courses is also needed. One facet of ICT is an increased emphasis on communications. This needs to be taken into account if the system is to be used successfully, whether it is to provide information to students or instructors or to give learners the opportunity to access a course directly, check their final marks, or find out if they have been admitted to a course.

Level 5 – Interoperability

Interoperability, or integration, represents the degree to which system components act interdependently with other components, either internally or externally. Modern integrated systems, such as enterprise resource planning systems (ERPs), are built around an interoperable framework offering the advantage of single entry and multiple usage ("enter once, use many"). While many administrative systems are interoperable, the situation is different when it comes to learning and research systems. Sakai, an open source initiative led by a consortium, is an exception, with an integrated learning system. However, Sakai is not an easy system to deploy and requires sophisticated support.

The choice between a highly integrated system and the "best of breed" approach requires the following considerations:

- business need
- infrastructure environment
- support staff capabilities
- legacy systems
- scale of operation
- cost

One of the reasons for the lack of development in this area is the nature of lecturer-based courses and their impact on the development of learning systems that have come primarily from the post-secondary sector. WebCT was an in-house development by the University of British Columbia before becoming a commercial product.[4] The culture of the academics owning their courses and delivering them in the manner they see best for them is endemic in post-secondary institutions. Such an approach conflicts with the ICT systems requirement for effective scalability and the need for a standards-based approach. The degree of interoperability is in many ways coincident with the degree of standardisation. Making exceptions and customising can occur, but they need to be at a level that does not impact the core system's ability to interact with other systems.

Secondary instruction, with its more standardised curriculum, faces fewer problems in having an interoperable and consistent approach. Indeed, it offers many opportunities for using technology very effectively to efficiently scale teaching resources. Standardised materials can be used by the broad community. This enhances both the teaching of core subjects and effective measuring of outcomes.

The benefits to system integration include seamless user experience, efficient use of infrastructure, reusability of content, automation of transactions and instantaneous service.

There is no single position on the degree of trade-off between customisability and interoperability: it is a continuum where a point is selected based on the goals, mission and needs of the institution. Each institution has to make its own informed decision on this.

Level 6 – Support

The cost of support is often hidden in development proposals because it does not come into effect until after the application or system has moved into production mode. Support consists of software maintenance, including upgrades and code maintenance, hardware and network maintenance, training, helpdesk, security and system administration, system integration management and change management. These are not small tasks and require a level of skill commensurate with the complexity of the system services.

The support requirement is determined largely by the nature of the infrastructure and the expected level of need of the community. The more specific and integrated the applications used, the greater the requirement for user support both in terms of direct data centre application maintenance and of on-call help to users. Moreover, greater specificity requires more locally trained and experienced personnel because external support opportunities will be greatly reduced.

Amalgamating support services provides opportunities for significant economies of scale – mainly as a result of learning economies and the amortisation of experience for a given number of components to an increasing number of users. This does not imply, however, that such costs are fixed and have an infinite scalability, as increasing user count

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4. WebCT was originally developed at the University of British Columbia by a faculty member in computer science, Murray W. Goldberg. Available at: http://en.wikipedia.org/wiki/WebCT

will require increased variable activities, particularly helpdesk. A constraint with all such provision of services is the inevitable lack of flexibility to any individual user or user group. Expectations in the form of service level agreements need to be clearly articulated to ensure users do not have expectations that are not able to be met – a site that can lead to conflict and dissatisfaction.

On balance, centrally provided services offer the most efficient method of delivering services to users and, managed effectively, can substantially reduce the cost of the overall system.

Open source – There has been a growing interest in the provision and sustaining of open source software, not only in terms of code development but also in the economic model that enables Open Source to work. Where once Open Source was the purview of "techies" with time on their hands and a peer group to impress, it has gone mainstream and is now seen as a commercially viable model. Sun Microsystems' purchase of mySQL in 2008 indicates a new economic model relating to the ownership of intellectual property rights as they relate to software.

For educational institutions, the shift is an enormous boon, a windfall of major consequence far beyond the accounting of foregone licensing expenditures. The establishment of support communities that assist in the development of an application provides an enormous wealth of talent, unsustainable in any one organisation, to review and upgrade the code. The suggestions that come from participating organisations are as a result of experience and usage. The advantage of this to other users is that, as most applications are focused on similar user groups, the developments are informed by considerations that each member of the community has. An example is the Moodle Learning Management System. The rapid adoption of this system has led to a sustainable and vibrant code base that improves significantly on an ongoing basis and reflects the needs of the member community.

In addition, to the opening of software without licence is the opening of courseware and – important from an ICT perspective – the compatibility of open courseware to the institution's learning management system.

The IMS[5] standard for course packaging, referred to as common cartridge, is gaining acceptance across learning management systems, with the major systems becoming compliant with the standard.[6] It enables an open source learning management system with open courseware that is downloadable into the system with minimal adjustment. While there are issues regarding the applicability of the course to the particular and programme, the technical ability to use free content and applications provides a significant saving to institutions. In addition, initiatives such as WikiEducator[7] are seeking to enable the development and sharing of open content through the use of a Wikipedia approach, potentially resolving and programme specificity constraints.

There are many open source initiatives under way to develop education-related applications. While the majority of the source initiatives focus on the learning platform, there are significant developments in administrative systems also. These include the Kuali Foundation's[8] development of administrative software that includes finance and student

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5. The IMS Global Learning Consortium creates global standards for the development and adoption of standards for educational content to enable its fungibility and reuse. See: www.imsglobal.org/content/packaging/
6. Version 1.0 of the Common Cartridge Specification was released in December 2008.
7. See: www.wikieducator.org/Main_Page
8. See: www.kuali.org/

information systems, and the educational portal developed by JA-SIG uPortal.[9] These are a top-level application built on levels of supporting open source code: the operating system, the database, the Web server, and the programming language used to write the code. In essence, the open source "ecosystem" is growing in complexity, more functional systems can be developed using open sub-components that ensure the final application is free of licensing constraints.

Unfortunately, "all that glitters is not gold" applies here and the watchword on open source is community. If particular software doesn't have a strong user base or contributing community, your institution may be left to fund and resource its development alone. Determining the community is not too difficult as a visit to SourceForge.Net,[10] the open source's cornucopia, will yield the size and dynamism of the install base. If the community is small and has lacked dynamism over a recent period, it may be wise to investigate further before adopting the particular software.

There are additional concerns with open source that should not be taken lightly. Whereas it removes a major cost element of an ICT infrastructure, it does not do so without substituting new cost elements. These revolve mainly around the need for "self-support applications" that require a larger staff with higher skill sets than is needed when an institution uses vendor-supported applications. An open source infrastructure requires:

- a commitment to maintaining an ICT capability within the organisation and an acceptance of a higher degree of complexity with regard to the infrastructure;
- an organisation that places strategic value on ICT and has senior ICT representation at the Executive level; and
- an organisational structure that supports the effective governance and strategic planning of the ongoing systems development.

As with the growing maturity of open source systems, there is a maturing of the commercial support for open source applications, including hosting and development. These are reducing the internal resource requirements and allowing institutions to at least trial open source applications or begin an initial push to transition. Moreover, open source is not an either/or decision between adopting all open source system components or none. An open source/open content learning environment can co-habit very effectively with a proprietary student information system or desktop services.

In considering the use of open source as opposed to a vendor solution, an organisation should ask the following questions:

- What is the skill level in breadth and depth, and the motivation of the ICT staff?
- Does the organisation have the governance and managerial experience to administer the complexity of a sophisticated infrastructure.
- What is the total cost of ownership over the lifespan of the system?
- Do we need or wish to customise the system to effectively meet our institution's objectives and mission?
- What are the switching costs from moving to a different infrastructure?
- Is there a local community of interest to help support our staff and user groups?

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9. See: www.uportal.org/
10. See: http://sourceforge.net/

Open source is a real and viable option for educational institutions. There is momentum in the business model that suggests it will not be dependent on economic surpluses of prosperous times. The arguments outlined by Tapscott and Williams (2006) demonstrate the business models that can sustain collaborative development over the long-run. In essence, open source is solving the intellectual property rights issue before it throttles the distance education industry, something the music and book publishing industries are struggling with.

Sustainability and cost – System sustainability is a critical element to consider before an ICT initiative is adopted. Too often an initial investment is made without adequate consideration of its total lifetime costs. The framework outlined above is one way to ensure that the requirements of ICT development are examined. In addition, the use of analytical tools (e.g., to study the total cost of ownership) is essential before any significant project proposal is undertaken, in order to identity its full financial and resource impact.

Two of the most overlooked aspects of ICT initiatives are the internal cost of deployment and the ongoing cost of maintaining the system.

- *Internal cost of deployment*: Often, in the excitement to employ the system's key functionality to address organisational issues, the focus is on external purchasing, licensing and maintenance costs. Internal resource requirements to adopt, integrate, learn and teach the system to the institution are substantially underestimated. As well, all too often the cost constraint precludes the appropriate level of such activities, leaving the user base to learn the system as best they can. This handicaps the system's abilities, resulting in a badly underperforming system. Sufficient funds need to be provided to facilitate the incorporation of the system into the organisation and therefore need to be included in the initial investment proposal.

- *Ongoing cost of maintenance*: System planners generally estimate system maintenance costs to be approximately 20% of the investment cost. While very easily stated in approximate or theoretical terms, the activities that yield such a factor are much harder to articulate in real conditions. They would include ongoing system management procedures and documentation, hardware maintenance, software patching and upgrades, and user services such as access, training and helpdesk support. Many of these activities are indirect to a system because they draw on existing resources for which the need is not clear or predictable. It is only after they have been used for a sufficient term to gather statistics that the true cost of the system can be understood. A traditional business approach would be to view other institutions to determine the likely system costs and to work these numbers into the lifecycle projections. Unfortunately, the contextual nature of much of systems deployment and the paucity of accurate operating metrics in the ICT field make such comparisons unreliable.

Another consideration often overlooked is the systems nature of ICT. The analogy to an ecosystem used above is apt when considering an ICT infrastructure. One system component does not act independently of others and any component, if improperly aligned, can lead to increased loads on other components (Halse and Terzoli 2002).[11] For example, reducing server hardware and bandwidth will lead to poorly performing systems and user dissatisfaction. Also, some software applications require greater system resources than others, thereby leading to additional costs of operation. An end-to-end analysis is required to ensure that potential savings in one component do not overburden a potentially more expensive service.

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11. For example, this was clearly shown by the inability of South African schools to take advantage of Microsoft free-licensing a selection of their software. The computer facilities in the country were rendered technically obsolete by the software.

A final point on the cost and sustainability of an ICT system is related to the cost analysis contained in the COL report by Rumble and Koul (2007), which identifies the various cost elements of an Open and Distance Learning (ODL) environment. With respect to ICT, they point out that the global cost structure is not favourable to developing countries and that the comparative cost of face-to-face instruction may be substantially lower than the technological alternative. The study they quote used 1999 data and the economics may have substantially altered since then with the developments of low-cost hardware, open source software, and deep educational discounts offered by vendors.

Nonetheless, the study serves to demonstrate that the application of ICT is not a panacea for all ills, and that cost savings attained through scaling in advanced countries (resulting in higher productivity of expensive instructional resources) do not necessarily transfer to other countries' situations. Thus, the evaluation of the appropriateness of ICT must be considered on a broader basis than simply the "automation" of instruction.

Continuing benefits – An implicit benefit of online learning is the ability the learners acquire to use collaborative tools after the direct educational objective has been attained. It brings participants' digital comfort to a level that is easily replicated and even demanded in work environments. Almost invisibly and unknown to the users, they become digitally literate, acquiring strong abilities in online collaboration, knowledge sharing and networking.

However, perhaps the key benefit of online learning is its ability to provide sustainable education to economically disadvantaged learners. It can be scaled efficiently; it offers access to learners not in the immediate environs of a teaching location; it provides access to those who cannot attend schools because of their requirement to contribute to the family's income; and it ensures that the economic circumstances of families do not determine the educational level of their children. By so doing, online learning can act as a critical enabler to improving the well- being, both materially and culturally, of those who choose to adopt and enthusiastically make use of its transformational capabilities.

EDUCATIONAL ISSUES

Access to the Internet and e-mail are the two most common uses of an ICT structure. In educational settings, most ICT structures also include a learning management system that provides a means for students to access and participate in lessons. Few of these systems dictate the particular learning models that should be used. They are designed to provide spaces for information exchange and places for interaction. How the space is to be used is up to the educational designers: as a repository for online resources, as the venue for instructional lessons, and/or as the place for asynchronous conversation and discussion among students (with or without the teacher), for quizzes and self-tests, and for programme orientation.

Learning design models

If you are going to take advantage of the "long tail" capacity of ICT and the opportunity to provide high quality resources and enhance consistency of provision, then it is necessary to consider such questions as what learning designs to employ and how to take advantage of the online environment. One model that provides most flexibility is the provision of learning resources (created materials and identified online resources) that individual teachers can use in their teaching. This has the advantage of being easily extended and enhanced as earlier materials can be replaced and further materials added. One decision to consider is whether there are any open educational resources available. This is similar

to the open source software question. What may be available may be free, but not necessarily of good quality or appropriate for your situation. If the materials are under a Creative Commons licence you will need to know whether it includes permission to adapt them for your particular context and circumstances. In any situation, issues of digital copyright have to be considered and online processes put in place to deal with obtaining permissions and monitoring use.

If an activity-centred model is used and students are given access to the resources, this could encourage the use of more learner-focused activities. Alternatively, the entire course, including all course materials and student activities, can be prepared and made available. Then the role of the instructor will be to: work with the students to help them achieve success; facilitate interaction; and mark and provide feedback on assignments.

One of the advantages of an ICT system is the enhanced opportunity for communications at every level. At the learner level, many contemporary learning models emphasise the importance of learners learning from each other. Thus, in a distributed system, it is important to include discussion forums, small work groups and other pedagogical designs to encourage interaction and foster a deep learning of the subject matter. Such communities can also be a support and a motivation for learners, as well as aiding in learner retention. The provision of a space to study, of someone to consult with, and of support and general guidance is particularly important for secondary students who are likely to be involved in economic activities as part of daily life.

In all of these learning designs, the intent is to use a design that provides multiple possibilities to address the needs of individual learners. This is particularly true in OS where some students may have the prerequisite knowledge for the task while others may be returning to school as adults and may have forgotten the material. In such situations, sidebar information focuses on specific tasks that students can use to help them know what is required. This approach is particularly important where difficulties with new material or concepts are expected.

The use of a wide range of technologies is possible. Students could receive the information via CD-ROM or through pod-casting. They could obtain advice and assistance through mobile phones or via radio. However, it is important to remember that the focus of learning designs is on student learning, not on technology. The decision about what learning designs will be most appropriate should be made first. Then decisions about how to actually make this happen in the particular context should be made. By approaching learning design in this order, the importance of learning is preserved and the practical realities of students' lives can be the focus of the second set of decisions. The academic culture, the expertise of instructors, and the intent of the system are all essential factors in decision-making.

Student services

Not only is it important to build in support for the maintenance and use of the ICT system and to provide technical support for users, it is also important to provide educational services to students – services that are in addition to the students' regular courses. This means supporting the specific skills that students require to succeed. Student services do not refer to the many student-focused activities that are part of the laddering and sidebar units within the learning designs. Instead, the major focus of student services is on enhancing the students' own learning skills. Services therefore include library support, programme advising, writing and mathematics assistance, and information literacy skill-building. How to prepare for and take examinations are also common topics.

In OS, this form of support can be especially important because students who are not attending classes may not receive all the additional advice that classroom teachers provide. The particular skills focused on will depend on the population and the specific requirements of the curriculum.

Examinations

Several issues surround the use of examinations online. Much depends on the context in which exams will be given, such as whether there will be invigilators who can print and distribute the examinations. Security is an obvious concern. For example, having sufficient different versions of the examinations (whether for in-person or online examinations) available will increase exam security and reduce the risk of cheating. Being able to post results online that students can access through their exam code also helps ensure response immediacy and accuracy. By providing students with the option of registering for an exam online and checking their results in the same way, NIOS has reduced its administrative load and helped students increase their own efficiency.

HUMAN RESOURCE ISSUES

In human resource terms, there are two crucial issues to be concerned with in deciding to invest in ICT. One has to do with the major language of staff and students who will use the system. The other has to do with the requirements necessary to ensure that users can make use of the system once it is installed.

Language – The first issue is sometimes ignored, but ICT can provide a very important opportunity to help people retain and use the country's major language or languages. One example is the work undertaken in Cambodia to ensure that the national language is not lost and to provide people from all sectors of society with easy access to selected services.[12] Similarly, in India, while NIOS provides its courses in the major language, regional authorities have the opportunity to translate courses into the local language to aid in language preservation.

- *Capacity-building* – There is much for staff and other users to learn when new technologies are adopted, from operating software programmes such as Word and Excel to using the learning management system, e-mail, Internet browser, and blogs and wikis. Therefore, training programmes must be provided to small groups so that people have lots of opportunity to try out the new software and lots of reasons to continue to practise and increase their competencies. Because most people learn best when they must continue to use a skill to achieve other goals, it is essential to ensure that use rather than technical competency is the focus. In addition to learning about the various software and programmes, it is likely that people will also need to be taught how to troubleshoot typical problems and to do small repairs and maintenance of equipment. Sometimes these skill sets are shared among staff and students. However, the entire process needs to be co-ordinated with the ICT professionals who are in charge of the system overall, and ongoing training and skill development are essential. Learners will also need to obtain ICT skills in order to be able to use the system most effectively. These may be imparted by the teacher or by a local trainer.

Besides being an important means for basic computer skills training, ICT is also a useful medium for continuing professional development of staff because of the ready access it offers to high-quality resources and the opportunity it affords for communication. Teachers in a specific subject can be linked together to share teaching ideas and resources,

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12. See www.open.org.kh/en

discuss concerns about students' lack of learning, or co-operatively plan to produce a set of materials geared to a topic in the curriculum. This is one way to encourage and sustain teachers' ICT skills. Another strategy is to provide an online version of a routine task such as noting attendance or calculating marks and final grades, which is easier and more effectively done with technology than in the "old way." Once teachers find that this one task is better done online, then their motivation for ICT use is likely to increase.

In conclusion, planning what ICT infrastructure to put in place is very important. However, an equal level of planning is required to ensure that teachers, students and staff can use it effectively and will continue to do so over time.

SUMMARY

This chapter provided an introduction to the work required to implement the technology aspect of OS. Summarised below are the key aspects that an organisation should consider in deciding how, when and to what extent to use ICT.

- *Getting started* – First, it is essential to understand what value alternative technologies might bring to classroom structures as a means of providing access to education. This means that the organisation should:
  - identify who the learners are to be;
  - identify what ICT formats might be used within the flexible configuration of OS;
  - find out what other research and reports on the topic are available; and
  - obtain, where available, infrastructure support from local partners and civil society organisations, many of whom have experience in providing ICT in schools.

  All of this supports good policy development, which requires: (1) awareness of the local context and the issues others have faced during the implementation process; and (2) clear delineation of the purpose, population and desired outcome targets of the proposed OS.

- *Policy issues* – Because ICT policy issues are complex, they should not be developed in isolation from larger government reform initiatives in sectors besides education. At the same time, ICT policy development in OS must be coherent within the education sector so that the underlying infrastructure is scalable and flexible.

  Policy development must occur at several levels: at the national education level, within the secondary sector, and specifically as it relates to OS initiatives. Policy regulation must be monitored so that these links can be maintained.

- *ICT infrastructure issues* – Policy questions related to ICT infrastructure must be answered at various levels and always in the context of the overall ICT policy direction and regulation specifics.

  All ICT developments are systems and therefore inherently complex. The successful inclusion of ICT in OS requires having a basic secure infrastructure. Such an infrastructure can be obtained in a variety of ways through open source or proprietary software, and networking achieved by using a hardwire backbone or multiple relay points in a mesh. Whichever way it is done, the intent is the same: the provision of a level of service to all nodes in the system that will allow for as much interaction as possible in the circumstances.

  For some organisations, the ICT may be mainly an administrative system; for others it may include a repository of resources. It can allow for, and even encourage, interaction, but in each case the overall purpose of the system is to provide the ICT infrastructure that educators require.

In making any ICT-related decisions for its OS programme, an organisation will need to consider the use of open source software. Given the particular company hardware investments already present in many countries, however, use of open source software is a thorny issue and may be challenging to resolve.

- *Educational issues* – Inherent in the development of ICT in OS is the premise that this is to help the advancement of learners. Learning designs are therefore needed – models for helping achieve and enhance student learning. How such models might benefit from the use of ICT and how ICT can help reduce barriers to student learning must be considered.

  Other educational issues include the provision of examinations, the addition of other student services, and the development of administrative support systems. In each case, the ICT infrastructure can be used to provide such support. In the NEPAD e-Schooling initiative, researchers found that the impact of ICT on the local community was much greater than expected. Teachers from schools without Internet access attended the training sessions and community groups were encouraged to go at non-school hours to use the school as a learning centre. Opportunities such as these help enhance community support for ICT.

- *Human resource issues* – The NEPAD e-Schooling example also suggests that the human resource issue of ensuring capacity-building with competent users can be less problematic if people see a benefit and purpose to ICT development. Furthermore, ICT encourages participation by multiple users, which in turn enhances feelings of self-efficacy and autonomy. Often, these user groups can suggest better strategies for the deployment of ICT in learning and thus enhance the overall system.

  The development and use of ICT in OS requires a model of overall coherence with multiple users who, through their actual experience, continually suggest improvements to the system. The system must be robust enough in policy and actual practical terms to be both flexible to these suggestions and able to maintain overall coherence within the education sector and within the larger national policy agenda.

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CHAPTER 4

COSTS OF OPEN SCHOOLING

Greville Rumble[1]

BACKGROUND

In the latter half of the 1970s, the World Bank funded a number of cost studies of alternative routes to formal education at primary and secondary levels. These studies were published in 1982 (Perraton [ed.] 1982). The focus was on two different approaches. The first involved the delivery of secondary equivalency programmes to students who attended a schoolroom each day, and whose attendance was therefore supervised by a monitor. This included the:

- federal government's Minerva Project in Brazil which was started in 1970 and, from 1973, produced and broadcast to non-traditional schools the complete basic education cycle;
- Educational Radio Broadcasting Institute of Bahia project in Brazil which produced broadcast teaching programmes for use in non-traditional schools;
- Malawi Correspondence College programme; and
- Mauritius College of the Air programme.

The second approach relied on less frequent student attendance at tutorials and listening groups. Each of the institutions in this group (the Korean Air Correspondence High School, the Correspondence Course Unit in Kenya, and Everyman University [now the Open University] in Israel) offered courses at various levels – secondary, university and teacher training.

Several but not all of the projects managed to attain costs that compared very reasonably with the costs of conventional education (Rumble 1997, p. 136). In Latin America, for example, projects such as Acción Cultural Popular in Colombia and Radio Santa Maria in the Dominican Republic were able to achieve costs per learner that were comparable to those in conventional schooling in these countries. Similarly, a number of projects in Africa were cost-efficient when compared with costs in traditional education.

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1. Adapted from Rumble and Koul (2007).

Some studies also sought to establish the comparative cost of producing a graduate. Given that these studies are looking at the cost per graduate, and given that graduate status represents an achievement of at least a minimum standard, this work obviously does take the quality of the output into account.

COST STRUCTURE OF ODL

To understand average costing data, it is necessary to have some understanding of the nature of costs and the cost structure of open and distance learning (ODL) systems. Management accounting has evolved. Traditional notions of fixed and variable costs have been embedded in the much richer framework of committed and flexible costs. Costs arise from the acquisition and use of organisational resources. Increasingly, the majority of expenses are determined by the commitment to create a productive capacity to develop and offer courses and an infrastructure to manage and support learners.

Types of costs

Committed costs embrace, for example, most personnel costs, the costs of computing and telecommunications systems, and depreciation on buildings and equipment. Committed costs are unaffected by how much the organisation uses the committed resources. Rather, such costs are related to a planned level of activity. There is thus a fundamental distinction between resources supplied and resources used. The fact that capacity is fixed (and being paid for) before actual need is determined means that if need fails to meet expectation, unused capacity results. This unused capacity has a cost. The cost of the unused capacity cannot be forgotten: it must be covered by income. The result of unused capacity is an increase in the organisational costs passed on to the customer.

Committed costs are distinct from flexible costs, which are paid for only in the amounts used. Examples of *flexible costs* are payments to contract course authors, the postage costs of delivering materials to students, telephone call charges incurred in the normal course of business, and payments to tutors for assignments marked. All of this is day-to-day work. Relatively few expenses are determined by the actual quantity of work demanded or performed each day. Flexible resources do not have a capacity defined for them because their supply (and capacity) can be adjusted up or down to meet actual demands. Note that costs that are flexible before a capacity decision is made (e.g., the commitment of resources to develop a course) become committed once that decision has been made.

Committed costs reflect the decisions that have been made to provide a given portfolio of courses and services. In most service industries, almost all expenses are determined by commitments to supply certain levels of capacity that are then built into the business through the acquisition of committed resources (e.g., clerks in a student record/ support office). Often these costs relate to the provision of capacity, but cannot easily be attributed to particular products and services. Such costs are referred to as *indirect (common) costs*. Some indirect costs, however, are entirely independent of the decisions to provide capacity. Rather, they sustain the organisation in being. Such costs (the costs of top administrative staff, for example) can be thought of as *business-sustaining expenses*. Generally activity-based costing approaches assign capacity-related indirect costs to products, services and customers, but will not attempt to assign business-sustaining expenses further down the organisation.

ODL-related cost elements

Any ODL system involves the following cost elements:

- *the initial capital costs of the business* – This includes costs for buildings, equipment, grounds, furnishings and information and communication technology (ICT). These costs are driven by the size of the operation and the extent to which functions are undertaken in-house or "bought in." Such costs are committed in the sense that they arise from a management decision to supply a capacity to perform work.

- *the costs of sustaining the business as an operation* – These costs (in the past usually referred to as overheads) include the costs of: direction and general management (finance, purchasing, estates – that is, buildings and grounds running and maintenance costs – and ICT infrastructure operating costs); and depreciation (on plant and equipment). These too are committed costs that arise from a management decision to provide a capacity to operate at a given level and in a certain way.

- *the costs of developing a curriculum and the materials used in courses* – Some of these costs are committed and some are indirect common costs arising from the decision to create a capacity to develop and support a given curriculum (for example, there is a body of academic staff who are charged with the task of developing and maintaining a curriculum, as well as permanent editors, designers and managers in the production office). Other costs may be flexible – that is, money is spent only if the activity takes place. An example of such a cost would be that for hiring a consultant to write materials. If course materials are used over a number of years, the cost of developing the materials may be treated as an investment and hence as a capital cost that can be annualised over the life of course. Replacement of the curriculum will, in effect, be a function of the number of courses multiplied by the average cost of a course, divided by the average life of a course.

- *the cost of presenting the courses* – Costs here include all those costs that are incurred annually (e.g., the cost of academic management of the course profile, cost of packing and dispatching course materials), together with all the costs that are incurred each time the course is presented (e.g., the cost of developing new assignment and examination papers each time a course is presented; the cost of marking assignments and examination scripts, the cost of face-to-face tutorials and the monitoring of course computer-based conferences; the cost of getting materials to students; the cost of transmitting radio programmes associated with the course). Again, some of these costs may be committed (especially the cost of managing the courses being presented), but many of the costs will be flexible, driven by the number of students enrolled in the course, the number of tutorial or conferencing groups, the hours of tuition offered and the hours of broadcast transmission consumed.

- *the committed and flexible costs incurred in supporting students* – These costs include student admission, registration, billing and fee collection, allocation to tutors, and advisory and support services.

Underpinning this cost structure (the relationship between the different cost elements) is the key distinction between committed costs – those arising from the management decision to provide a system with a given capacity (that may then be used or unused without affecting expenditure) – and flexible costs, which are only paid for in the amounts used.

The overall cost structure can be expressed as follows:

Total annual costs =
Business sustaining costs **+**
Committed/indirect common course development costs **+**
(Flexible course development costs life of the course) **+**
Committed/indirect common course maintenance/presentation costs **+**
Flexible course presentation costs **+**
Committed/indirect common student support costs **+**
Flexible student support costs

Both the *flexible course presentation costs* and the *flexible student support costs* are themselves a function of a range of activity-related costs driven by the appropriate volume of activity. For example, among the cost elements might be the following:

- cost of assignment marking – the number of students on the course × number of assignments set × the average rate of submission of assignments × assignment marking fee paid to tutors
- cost of tutorials – [the number of students enrolled in the course ÷ the average size of a student group] × the number of scheduled hours of tutorial per group × fee paid per hour to tutors conducting tutorials
- cost of radio transmission – the number of minutes of radio programming associated with the courses times the cost per minute of transmission

FACTORS AFFECTING COSTS

The complexity of this cost structure is hidden by simple measures such as the average cost per student, the average cost per graduate and the average cost per putative instructional hour. Furthermore, the reduction of all costs to a single measure such as the cost per student, which is then used to calculate the financial effects of expansion or contraction, will distort the picture because costs are driven by a very wide range of variables and affected by commitments. Having said this, several key factors do affect the average cost outcome, including:

- *the total number of students overall* – The more students there are, the more that committed institutional costs will be spread across the student body, thus bringing average costs down.
- *the number of course options* – To maintain their academic credibility and cater for minority interests, most institutions have to offer a range of courses. The more courses there are, the greater the level of initial investment in their development and the greater the annual expenditure in maintaining and replacing them. In general, institutions offering a range of courses and a mix of mandatory and optional courses find that student numbers are not equally distributed across all courses. Mandatory courses, lower level courses and courses in popular subjects will generally have more students in them than other courses. Indeed, some courses may attract very few students. Large-population courses will be more efficient than small-population courses, other things being equal. A large student population will mitigate the burden imposed by small-population courses, but many institutions still find that the cost of small-population courses is effectively carried by the efficiencies reaped on courses attracting large numbers of students.

- *the number of years over which a course is presented without any changes to the materials* – The longer a course's life, the longer the period over which the annualised costs of development will be spread. Long course lives are nevertheless problematic because subjects evolve, and dated courses will reduce the overall quality of a programme. At the school level, particularly where a school is teaching to a national curriculum, this is less of a problem. Conversely, however, changes in the national curriculum may force an open school to redesign all its courses in one go – and frequent changes can be financially crippling.

- *the choice of the media and technologies used* – Each technology has its own cost structure (a balance of committed and flexible costs). The flexible element in the cost will be driven by different factors – for example, student heads, student courses, ratio of tutors to students, and proportion of assignments returned for correction and size of tutorial group.

  Research has shown that: (1) the print, audio and pre-recorded instructional television media tend to be cheaper, together with radio where audience sizes are above 1,000; and (2) the most expensive technologies tend to be face-to-face tuition and computer-based communication (except for relatively small numbers of students). The cost of computer-based teaching and learning – which includes hardware, software, connectivity, consumables, electronic library and other site access, and academic and technical support – varies enormously, depending on what is being offered. Current studies on the costs of computers in schools include those by Cawthera (n.d.) and Bakia (2002, 2003). The burden of small-population courses can be mitigated by choosing to teach such courses using media with low levels of committed costs. On the other hand, teaching large-population courses using media with high flexible costs will cause total costs to escalate rapidly.

- *the type of learner support offered* – The high cost of face-to-face support means that its use should be limited if costs are to be kept down. All too often, however, there is pressure to make open schools look like traditional schools. This pressure leads demands for more face-to-face teaching. In practice, as Bakia (2007, p. 41) observes, many open schooling (OS) projects have high variable (that is, flexible) costs as well as substantial costs arising from the investment in materials and student support systems.

In addition to these factors, institutions that wish to keep OS costs down should do the following (after Rumble 1999):

- Avoid cost-inducing actions, such as using copyrighted materials where high fees may be payable for usage.

- Pass costs on to the student, either as charges or by moving the system boundaries so that the students pay for activities that the institution might once have paid for. An example of the latter would be the delivery of text materials in electronic form, thus reducing distribution costs markedly while passing the costs of printing on to the student.

- Adopt structures and labour policies that minimise costs. In other words:
  - employ people on contracts for service to develop courses and teach students, rather than as full-time employees; and
  - establish working practices that reduce the costs of labour – for example, by designing courses to be wrapped around existing textbooks rather than developing new materials, and by using author-editor models of course design rather than big course team models.

- Use technology to increase the student load per academic or administrator.
- Reduce the cost of labour through "labour for labour" substitution – that is, by replacing expensive academic labour with less well-trained adjunct labour, which is less costly.

Simple measures such as unit costs and a relative efficiency ratio hide the underlying complexity of any comparison between one system and another. Table 4.1 summarises the many factors that impact costs and cost data.

Table 4.1: Major factors affecting costs in open schooling (OS).

Factor	What it affects	How the factor affects the cost
Total student numbers	Unit costs	Committed costs of capital including course development and costs incurred in sustaining the business will be spread across students. Unit costs will therefore be higher if student numbers are low and lower if student numbers are high.
	Flexible costs	Total student-related flexible costs will rise in line with student costs.
Courses presented	Capital costs	The more courses presented, the greater will be the number that need to be developed, resulting in a rise in the capital cost of the curriculum.
Course lives	Capital costs	The longer that courses are presented before being withdrawn or remade, the greater will be the number of years over which the capital costs of their development can be annualised, and therefore the lower the sum that needs to be spread across the student body as a whole, or across the students taking the particular course.
Media and technology choice	Committed costs and flexible costs	Each medium/technology has its own cost structure. Therefore, media and technology choice will affect total costs, total committed costs and flexible costs in different ways.
Face-to-face support	Flexible costs	The amount of face-to-face support that needs to be provided will be driven by decisions about the size of groups and the number of hours to be given to each course member. The total number of hours required will rise as student numbers, and hence group numbers, rise. In large-scale systems, relatively modest increases in student numbers can generate considerable increases in cost.
Course design parameters	Committed costs and flexible costs	Design parameters – including decisions to create all materials internally, buy in materials (and whole courses) or merely create study guides to existing textbooks that students have to buy themselves – will impact on costs in a range of ways.

Factor	What it affects	How the factor affects the cost
Course module size	Working practices and hence capital costs	Large modules (e.g., requiring 50–100 hours of study) will, depending on design decisions, need teams to develop the materials. This incurs higher transactional costs as team members interact. Smaller modules can often be developed by one or two people, thus reducing transactional costs.
Cost recovery through cost sharing	Committed and flexible costs	Decisions to get students to pay for goods (e.g., texts) and services used at cost, cost-plus and less than cost will influence the extent to which variables in course design affect the institution or the student.
Labour employment policies	Capital costs and flexible costs	Using contracts for service for course developers and course tutors will reduce the level of committed cost put into hiring staff on contracts of service. In general, this will therefore reduce the capital costs of developing courses and ensure that the flexible costs of teaching are no more and no less than those needed to deliver the courses.
Labour substitution policies	Flexible costs	Using less expensive labour – for example, graduate students rather than more qualified staff as tutors and assignments markers – will reduce the flexible costs of teaching.

ICT COSTS

The relative cost of technologies may vary significantly from country to country as, "for the first time in the history of educational systems, the price of an educational input is determined not in accordance with the local purchasing power, but by world standards which apply in a similar way to rich and poor countries" (Orivel 2000, p. 138). For less advanced countries this has, according to Orivel, posed a simple choice between either introducing "new technologies in their schools at the expense of expanding school opportunities or [concentrating] their limited resources on educational expansion, and thus renounc[ing] the chance to develop new technologies in their school systems" (2000, p. 138).

One of the arguments in favour of using technology is that it brings the unit cost of education down. In distance education, this has been done through the achievement of increases in productivity following the substitution of capital (in the form of technology) for labour (teachers). Indeed, one of the strongest arguments for using text, reusable (recorded) audio and video, and ICT as a repository of information in education rather than using face-to-face teaching is that it shifts some of the teaching from the teacher to the medium, thus helping to bring down the unit cost of education (provided student numbers are high enough).

However, as Orivel points out (2000, pp. 147–149), the costs of ICT are linked to a global market in hardware, software and consumables. Thus, the cost of computing does not really differ significantly between developed and developing countries. In developed countries, the cost per hour of using a computer was about US$1.75 per hour in 1999.[2]

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2. Orivel (2000, p. 148). Based on Coley et al. (1999).

This cost covered the amortisation cost of each computer (at zero rate of interest), maintenance, software, electricity, additional equipment such as printers and servers, some furniture, Internet connection, ISP costs and telephone costs. When compared with the cost per student per hour of face-to-face teaching (between US$4.00 and US$12.00), the cost was "clearly competitive." In developing countries, however, the cost per student per hour of face-to-face teaching may be as low as US$0.10, which, as Orivel observes, is very low when compared to the cost per student per hour of computing.

IMPLICATIONS FOR POLICY-MAKERS

Our knowledge of the costs of distance education allows us to draw some general conclusions for policy-makers contemplating OS as a means of expanding the number of school places.

- Even though much of the basic research on the costs of OS dates back to the 1970s and 1980s, we know that the substitution of capital (in the form of educational materials delivered through a range of technologies) for labour in the classroom is likely to bring the cost per student down, provided that:

  - the materials are used for a number of years before being withdrawn from use;

  - the materials are used extensively (that is, a significant number of pupils or students use the materials); and

  - the capital and delivery costs of the technology are kept low.

- However, we also know that we cannot rely on school-aged children and young adults showing the single-minded dedication and motivation of adults pursuing a distance education course. Learners thus need to be motivated and guided by a responsible adult. This could be a parent or guardian in the case of home-schooling or an adult who controls what happens in a classroom. It is the latter arrangement that applies to open schools. This means that the straightforward capital-for-labour substitution found in adult-oriented distance education cannot apply in the same way for OS. From a cost point of view, the danger is that the cost of the technology (both capital and delivery) will be added to, rather than substituted for, the costs of classroom labour.

- To solve this problem, most OS projects substitute less costly labour for more expensive labour by using monitors or classroom assistants rather than fully trained teachers. This strategy is generally easier to achieve where wholly new schools are set up (as in the Mexican *telesecudaria* system). It may be less easy to achieve in schools where the introduction of technology-based learning within the classroom is seen to be replacing trained teachers with untrained ones.

- Although the costs of the various media (text, audio, video, face to face, computing) have changed over the years – with technology costs in general coming down – the relative costs of media generally have not changed. Printed text and radio/audio remain relatively inexpensive, while video and computing costs continue to be more expensive per pupil. Thus, from a cost point of view, Interactive Radio Instruction (IRI) remains a highly attractive option when compared with video and computing and face to face.

- The use of e-learning in the classroom and, to a slightly lesser extent, video, makes use of technologies whose costs are driven by the price structures that exist in the technology-producing country. The resulting costs need to be compared with the local price of labour. Substitutions that make economic sense in one setting will not necessarily make sense in another. This is why strategies to produce inexpensive

(US$70.00) solar-powered 12-volt, 8-watt computers (now being pioneered by Inveneo for use in Rwanda) is key – along with the localisation of software into indigenous languages – to making e-learning more feasible in developing countries (Baldauf 2007; Bigirimana 2007).

- Generally speaking, school curricula once agreed to are relatively stable. Therefore, teaching materials, once designed, are likely to be used for several years. However, major curriculum reform will trigger significant redevelopment costs and these will need to be built into budgets as a capital costs.

The encouraging thing is that we know enough about what makes distance education, and hence OS, more or less expensive to be able to control costs. We also know that, properly designed, open schools can work, delivering a quality of education that is at least as good as that in traditional schools. We can therefore design OS systems that will deliver a significant increase in the number of school places available at a reasonable cost per place, compared to the alternative strategy of expanding traditional schools.

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Part III:
Case Studies

CHAPTER 5

OPEN SCHOOLING IN BOTSWANA: THE CASE OF BOTSWANA COLLEGE OF DISTANCE AND OPEN LEARNING

Daniel R. Tau and Godson Gatsha

ABSTRACT

Open schooling in Botswana is a unique and flexible delivery mode of secondary education. The Botswana College of Distance and Open Learning (BOCODOL) was established through an Act of Parliament in 1998. It has taken charge of open schooling in the country since 2000. It has, over the years, demonstrated the possibility of affording everyone an opportunity to access secondary education at any place in Botswana. Guided by the Revised National Policy on Education and by National Vision 2016, BOCODOL operations cover the entire country. So far they have provided access to 34,400 out-of-school youths and adults. It has developed self-learning materials to deliver the national secondary education curriculum through a network of five strategically placed regional centres. This has led to a decentralised learner support system that has enhanced retention of learners in the programmes. Despite the impressive progress registered, a number of challenges associated with open schooling delivery have public policy and strategic planning implications.

BACKGROUND

Botswana is a landlocked country is located in southern Africa. It shares borders with Namibia to the west, Zimbabwe to the east, South Africa to the south, and Zambia to the north. Botswana's population is about 1.7 million, spread over an area of 582,000 square kilometres. It followed the British system of education until recently when it localised its secondary school curriculum. This has resulted in an education system that has strong local content and addresses the national socio-economic needs. To meet the challenge of youths and adults who, in one way or another, missed out on secondary education, Botswana's education system has used ODL as an alternative delivery to conventional schooling. Botswana College of Distance and Open Learning (BOCODOL) is the

only public institution in the country dedicated to the delivery of school equivalency programmes through ODL.

Institutional profile

Distance education in Botswana was delivered by the Department of Non-Formal Education (DNFE) from 1979 to 1998. Previously, DNFE had some correspondence activities were designed specifically to train primary school teachers. Other correspondence teaching had been undertaken by the Botswana Extension College had offered extension training, but it ceased to exist with the advent of DNFE. Correspondence education dates back to the 1960s and attempts that were made before 1998 provided vital lessons that transformed the limited correspondence offerings into the ODL that currently reaches all parts of Botswana. The transformation was a result of the 1993 Presidential Commission on Education, whose recommendations led to the establishment of BOCODOL, a semi-autonomous institution (Republic of Botswana 1993). BOCODOL was created through an Act of Parliament in December 1998, but only became functional in December 2000 following the appointment of its inaugural Board of Governors.

When BOCODOL started operating, its vision was to be a fully established, financially viable, parastatal[1] college, providing relevant and effective pre-tertiary education throughout Botswana using ODL. Its mission was to provide accessible, high quality learning to out-of-school young people and adults nation-wide, using the ODL methods (BOCODOL 2000). By 2002, BOCODOL had achieved its vision and mission and was propelled to be even more ambitious. As it made its next strategic plan, its vision was to be internationally recognised as a college of excellence in ODL. It then embarked on a mission of empowering the people of Botswana with education and skills by giving them open access to high quality, innovative distance learning programmes, and by promoting a culture of lifelong learning (BOCODOL 2003a). The vision and mission demonstrated a sense of purpose and determination to make a mark in Botswana's ODL context.

By the end of 2006, BOCODOL had been awarded a Commonwealth of Learning Award of Institutional Excellence in Open and Distance Learning, an international recognition that confirmed that its vision had been achieved. This in turn meant that a new strategic direction was required if BOCODOL was to remain a centre of excellence in the delivery of high quality innovative ODL. The college's current mission emphasises the promotion of global competitiveness and a culture of lifelong learning (BOCODOL 2006).

In its school equivalency programmes, BOCODOL offers 11 Junior Certificate level subjects and 11 Senior Secondary School Certificate level subjects. It currently has a well-established regional system that is responsible for managing enrolment and supporting distance learners across the country. Over the years, it has had an accumulative enrolment of 34,400 learners and a total of 120 staff members. New annual enrolment is now 5,812 distance learners, 16.4% of whom are enrolled in junior secondary, 71.7% in senior secondary, and 11.9% in the adult vocational certificate programmes.

Staffing is now assured by about 120 full-time employees (11 academic staff, 50 management and professional staff, and 59 support staff.) In addition, BOCODOL hires about 800 part-time staff to serve as tutors and writers.

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1. Meaning a semi-autonomous public institution, run on business corporate lines.

National context

During the past two decades, Botswana's educational system has been guided by the 1977 and 1994 National Education policies. The 1977 policy, known as "Education for Kagisano" (social harmony), laid the foundations for universal primary education. The 1994 Revised National Policy on Education ensured that universal access to 10-year basic education was achieved. Universal secondary schooling currently goes up to year three. There is a 66% transition rate from year three to year four of conventional secondary schooling because of the limited number of senior secondary schools. Thus, with this access problem at the senior secondary level, there is a key role for open schooling to play. The general adult literacy rate has improved over time and currently stands at 81%.

The national secondary school curriculum is rich in terms of the national content. At the same time, it is adequate for enabling learners to cope with studies internationally, as exemplified by the success rates of Botswana students taking tertiary education internationally. All institutions delivering the secondary school curriculum either through conventional or ODL modes are regulated by the Education Act and other educationally related statutory instruments.

Legal and regulatory framework

All organisations that operate a public good are required by law to be legal entities. BOCODOL is a legal entity created by an Act of Parliament and it therefore operates within a legal framework. Unlike the conventional schools, which fall under the control of either central government or local authorities, BOCODOL falls under the control of a Board of Governors. In this case, BOCODOL, as a semi-autonomous institution, can sue and can be sued. In addition, policy documents such as the 1994 Revised National Policy on Education and the country's National Vision 2016, inform the development and reviewing of the college's policies. These policies, developed through a consultation process that involved citizens of Botswana across the political divide, underscore the wishes and aspirations of the nation as a whole. This trait of consultation is regarded as critical and a cornerstone for good governance in Botswana.

Governance

BOCODOL is a parastatal institution under the Ministry of Education and Skills Development. Unlike traditional school governance that rests with Ministry of Education officials, BOCODOL's governance structure is made up of the Board of Governors appointed by the Minister of Education. The members of the Board hold office for three years and membership is renewable. While the Board of Governors is charged with determining the college's strategic direction, the College Executive Management runs college operations. This body is made up of the Executive Director, the Dean of Academic Services and five Directors. The Directors are each responsible for divisional sections of the college, namely Financial Services, Programmes and Multi-Media, Learner Support Services, Corporate Services, and Centre for Open and Distance Learning (ODL).

The governance system adopted for managing college business is informed by national and international trends. The College Act defines the governance structure, roles and responsibilities. The Act requires that a Board of Governors be constituted periodically and that it be made up of key stakeholders from both the public and private sectors. The statutory provisions of the College Act provide for the College Board of Governors to

report progress on open and distance schooling to the Minister of Education and Skills Development. The Minister is responsible for all education matters in the country, including open and distance schooling. The Minister annually reports to the National Assembly, with ODL and open schooling activities forming part of the report.

Challenges

The issues of governance have so far been handled fairly well without any major challenge. However, the possibility of a challenge lies in the fact Board members are appointed by the Minister. Some critical decisions may thus be taken for political expediency as opposed to satisfying the principles of good corporate governance. It is worth noting that so far Board members have conducted themselves within the acceptable principles of corporate governance. This could be the reason for the existence of a strong and successful organisational model and culture.

Organisational model and culture

To implement its strategic plan, BOCODOL has adopted a divisional organisational model and decentralised operations through a network of five strategically located regional centres. The college thrives on a successful performance management system (implemented in 2002) and an organisational culture that is informed by the national democratic ideals of transparency and consultation. In order to drive the organisational culture, BOCODOL has, through its strategic planning process, embraced progressive values that guide the conduct of staff and learners. The six core values of the college are:

- Creativity and innovation – to inculcate the adoption of best practice;
- Customer focused – to meet the needs of clients;
- Professionalism – to inculcate in every individual at the college the need to work to the best of his or her ability and achieve quality work of the highest possible standards;
- Compassion – to demonstrate care and support for others in the course of college business;
- Technology – to aid productivity, innovation, efficiency and cost-effective production and delivery of quality materials and services to learners; and
- Networking and partnerships – to facilitate access to national and international best practice and contribute to the provision of quality ODL programmes and services to learners.

Challenges

Operationalising the organisational model has not presented many challenges. It has worked well so far. However, the conceptualisation and embedding of performance management systems into the day-to-day activities of BOCODOL remain a challenge for a few staff members. There is a need to continue holding workshops so that the performance management system can be better understood and firmly institutionalised.

Funding model

BOCODOL, like the conventional schools, is funded mainly through annual grants from government for its open and distance schooling programmes. The government also expects the college to generate some income from its operations. Currently, the college is

expected to raise 15% of its budget to meet some of its operating expenses. By contrast, conventional secondary schools do not have to meet any of their operational costs.

Unlike the conventional schools, the college also takes charge of its assets, including management of the annual grant. Conventional schools' accounting, auditing and other financial issues are handled by the Ministry of Education and are subject to government financial procedures.

The college's funding model is supposed to be based on enrolment projections, which in turn are informed by demand and previous enrolment records. Through-put levels are not a factor that government takes into account when determining the budget. The annual budget of the Ministry of Education and Skills Development tries to take into consideration the college's operational activities in determining funding levels but, because of competing demands from other equally deserving sectors within the ministry, the college never receives all the funds it has requested in its budget submission.

Challenges

The challenges associated with the funding model have, to some extent, frustrated the college. Given the ministry's budget rationalisation, the college's legitimate expectations are never fully met. This results in the college having to forgo certain initiatives. Another major challenge is that the college is unable to charge tuition fees at market prices for open schooling programmes because government expects the college to subsidise tuition fees to meet its social responsibility.

Student success rate

Table 5.1 and 5.2 (see p. 72) show student success rates for both Junior Certificate and Botswana General Certificate of Secondary Education (BGCSE), respectively, measured in grades achieved in the end of course examinations conducted over the years by an independent external body, Botswana Examinations Council (BEC).

Throughout the years, the percentage pass rate for Junior Certificate has been similar to achievement rates in conventional public secondary schools. Worthy of note is the relatively high number of ungraded candidates. This happens because students are allowed to sit examinations over more than one year. The system in conventional schools is that students take all nine subjects in one examination sitting in order to meet the requirements for grading. Open schooling learners, however, are allowed to take the nine subjects in two examination sittings in order to be graded.

As Table 5.2 shows, passing grades for completers at BGCSE level have been above 90% throughout the period in terms of the average grading achieved from A* (meaning grade A star) to G. The average achievement is comparatively similar to that in the conventional schooling system, though students in the latter have consistently scored an average of between 40 and 45% in the grades A* to C.

Overall the performance by the college demonstrates that OS learning methodologies can be just as effective as conventional methods of learning.

Challenges

There are various challenges associated with improving student success rates. Reasons for poor performance provided by some learners include: the inability to study at a distance; inadequate preparation for examinations; poor time management; procrastination; personal reasons; and the inability to pay examination fees.

Table 5.1: Performance of Junior Certificate candidates since 2001.

| Year | Total Candidates | Letter Grade | | | | | Total *Ungraded[a] | Total Pass (A–C) | Total Graded | Percentage Pass (A–C)[b] |
		M	A	B	C	D				
2001	220	1	0	3	91	43	82	95	138	68.84
2002	295	0	0	0	52	23	220	52	75	69.33
2003	533	0	2	6	80	24	420	88	112	78.57
2004	374	0	0	9	85	17	263	94	111	84.68
2005	487	0	0	5	172	21	289	177	198	89.39
2006	445	0	0	12	102	43	288	114	157	72.61
2007	495	0	0	14	182	68	231	196	264	74.24

a Enrollees are allowed to sit the nine required subject exams in up to two sittings over a period of five years. Candidates are students who registered to sit some but not necessarily all required subject exams. To be considered graded, and hence to meet graduation eligibility, a student must have written at least nine subject exams. Only graded candidates can pass or fail.

b Per cent pass rates cover only students who have sat enough (nine) subject exams to be eligible to graduate.

Table 5.2: Overall grade (%) distribution of Botswana General Certificate of Secondary Education (BGCSE) since 2002.

	2002	2003	2004	2005	2006	2007
Average * – C	17.1	26.9	26.8	27.3	27.2	25.4
Average * – E	64.5	75.8	75.3	75.1	74.9	74.3
Average * – G	91.9	97.2	95.3	94.5	93.8	95.0
Ungraded	8.1	2.8	4.7	5.5	6.2	4.97

The failure to pay examination fees as a result of unemployment represents the major challenge concerning completion rates. Table 5.3 shows actual enrolment and through-put over the years. When learners enrol for the open schooling programmes, they are made aware of the examination fees. For Junior Certificate, these are equivalent to the total cost of tuition (about US$21.00). However, for BGCSE, the cost of examinations is much higher, almost 10 times the total cost of tuition (about US$275.00), primarily because they are partially processed in the UK by the University of Cambridge. Particularly insofar as the BGCSE is concerned, students enrol with the hope that during the course of the year or the following year they will raise money for the fees from relatives or from short-term employment. BOCODOL's role is unfortunately limited to provision of tuition at a distance and ensuring that learning support provision is rendered to all who need it. Examinations are an external matter for which the Botswana Examination Council is in charge.

Table 5.3: Enrolments[a] and through-put for Junior Certificate and Botswana General Certificate of Secondary Education (BGCSE), 2002–2007.

Programme	2002	2003	2004	2005	2006	2007	Total
Junior Certificate enrolment	1,093	1,178	951	1,467	832	1,954	7,475
Junior Certificate through-put	295	533	374	487	501	445	2,635
BGCSE enrolment	2,665	2,994	3,687	3,957	3,583	4,919	21,805
BGCSE through-put	407	935	1,351	1,586	2,004	2,139	8,422

a   A student enrols only once, upon admission. Enrolment figures are for new enrolments and are not cumulative.

KEY FEATURES OF BOCODOL

Target audiences and curriculum

The core audience originally targeted by the open schooling curriculum was out-of-school youths and adults who had never had the opportunity to do Junior Certificate or BGCSE. However, this has changed over the years as a great number of out-of-school youths and adults who have had the opportunity to previously enrol in the two programmes in the conventional school system – or even at BOCODOL – now enrol in various courses offered in the open schooling curriculum. They do so to upgrade their previous unsatisfactory grades and to satisfy entry requirements for programmes they may wish to pursue at tertiary-level institutions. Such learners represent about 60% of the total enrolment. Other factors that have contributed to enrolment growth include personal reasons for self-development or promotion at work and in response to the

country's Vision 2016. All eligible applicants are enrolled on a first-come-first-served basis, taking into consideration the stipulated requirements outlined in the next section.

The open schooling curriculum offered to out-of-school youths and adults is the same as in conventional schools. It is designed and developed by the Department of Curriculum Development and Evaluation of the Ministry of Education and Skills Development, in consultation with other departments within government and the private sectors.

While the core business of the open schooling system is to offer school equivalency programmes, the market needs of an agro-industrial economy and of the out-of-school youths and adults have resulted in a vocational and entrepreneurship curriculum designed for those interested in starting and running small-scale businesses. A certificate-level course in Small Scale Business Management is offered side-by-side with the open schooling academic programme for those who have at least a primary school leaving certificate with a grade C pass. This has proved very popular with the target audience and BOCODOL's philosophy of openness has attracted a new client group to this certificate.

Challenges

There are several major challenges in reaching and supporting the target audience:

- The demand for enrolment is so high that not everyone who wants to enrol is accommodated.

- Some of the learners who gain admission to BOCODOL programmes, though heavily subsidised by the college, face difficulties in paying examination fees.

- Many first-time distance learners who enrol find the ODL delivery new and not what they had expected in the form of tuition, despite the numerous induction programmes and pre-enrolment counselling they go through. Many generally expect full-time teaching as in conventional schools.

- The issue of English language is also a challenge for some students who are largely second-language speakers of English.

- The curriculum is rather limited insofar as it accommodates largely those inclined towards the social sciences and humanities. There is a need to develop and deliver both vocational and pure science courses.

Degree of openness

BOCODOL's admission policy is determined by the competencies an individual requires to cope at the level of entry. The college is mindful of the fact that absolute openness may lead to failure and loss of hope by those who do not possess adequate competencies to study either the Junior Certificate or the BGCSE programme. The minimum requirements specified for each programme are a guide meant to help all who enrol to be able to complete the programmes and acquire the culture of lifelong learning.

The normal entry requirement for the Junior Certificate programme is a pass with a C grade at primary school leaving examinations. For senior secondary open schooling, a pass with an overall grade C at Junior Certificate is a requirement. The college is currently exploring how recognition of prior learning might be used to open up access for those who may be falling short of the minimum entry qualifications.

Both programmes are delivered in a flexible manner. For the Junior Certificate, students have up to five years to complete the programme; for BGCSE, they have up to four years to complete. Within the prescribed period, learners pace themselves and are able

to suspend their studies by formally writing to the nearest regional centre. They can subsequently resume their studies whenever they so wish, though experience suggests that students who suspend their studies seldom complete them. The period of study is not the same as in the conventional schools where students complete the Junior Certificate programme in three years and the BGCSE in two years. Special needs learners enrol in smaller numbers. Depending on the nature of the disability, it is usually not easy to identify these potential students and encourage them to enrol. Students with special needs who previously enrolled were, for the most part, physically challenged. However, special groups such as prison inmates and very remote learners from the marginalised communities have always been encouraged to enrol, though entry requirements and periods of study are no different than for other students. Special needs learners may account for about 2% of the entire enrolment.

Cost is not a limitation to openness (though it may well be, insofar as completing, given the examination fees charged – something over which BOCODOL has no control). The tuition fees charged by the college are very low because they are heavily subsidised. The college has, for the past five years, been charging P15 per subject for Junior Certificate and P25 per subject for BGCSE. This is equivalent to US$2.50 and US$4.00, respectively.

Challenges

The major challenge associated with the degree of openness is the delay in the development of a policy on recognition of prior learning. However, there are instances where individual cases have been attended to and where, based on their prior learning and work experience, students have been allowed to enrol.

Otherwise, the degree of openness does not disadvantage many of the prospective learners who come forward to seek enrolment. It is, however, limiting for students enrolling for vocational or practical subjects and pure sciences that need laboratories, since the college does not have such facilities at the moment. The degree of openness is also limiting when it comes to special needs learners with particular disabilities, as steps have not yet been taken to cater for specific needs such as sight or hearing impairment.

Curriculum development and production model

The secondary curriculum adopted by the college is regulated by the Ministry of Education and prescribed for the national needs of Botswana. It is designed and developed by the Department of Curriculum Development and Evaluation. However, the interactive self-learning materials for the secondary open schooling courses are designed and developed by BOCODOL's Programme Development Division.

A team approach is adopted for development of the interactive self-learning materials. The college's Programme Co-ordinators usually invite full-time practising subject experts to become part-time writers. Once part-time writers have been recruited, they are trained on how to write interactive self-learning materials. During the writing of the self-learning materials, the experts and the Programme Co-ordinators decide which instructional media they would like to have included (e.g., audiocassettes) and then request the Multi-Media department to assist in including the media identified as part of the self-learning package. The college has outsourced the printing of all its material.

Once print houses have delivered the self-learning materials, in-house packaging is done in line with the requests or orders made by the regional centres. Delivery of learning materials to learners is done through the regional centres. The regional centres in turn

deliver self-learning packages through the learning centres where enrolment takes place. All reprints of self-learning materials are sourced out annually and delivered to the learners in the same pattern indicated above.

Course delivery model

Course delivery is managed through the regional centres. The Regional Managers and the Learner Tutor Co-ordinators facilitate the organisation and administration of delivery of all courses on offer at the learning centres. The regional centres recruit tutor-markers. The role of the tutor-markers includes marking assignments and providing detailed feedback, as well as providing face-to-face tutoring on a weekly basis in the evenings wherever learning centres have been established. Tutor-markers also provide tutoring during weekends and school vacations. Tutorial sessions are conducted to complement the print course delivery and, although optional, are attended by about 70% of students.

Challenges

The model of developing self-learning materials using part-time experts has its own challenges:

- Material development is at times very slow because part-time writers have other priorities in their full-time jobs. This results in delayed completion of content writing.
- At times, part-time writers fail to follow the course outlines given by the Programme Co-ordinators and, worse, some plagiarise existing works, thereby leaving the college vulnerable to legal consequences.

The challenges in course delivery include:

- Learners often expect tutors to teach as in conventional secondary schools.
- Tutors often complain that they are taxed on the allowances they receive as part of their honorarium. The taxation is a legal requirement and awareness meetings have been held to sensitise tutors. Taxation has led to tutors resigning, sometimes in large numbers, though finding replacements has not proven too difficult.

Learner assessment

Formative and evaluative assessment for open schooling courses is developed by the college internally. This is done by, for example, activities and exercises, unit assignments and mock examinations. Through activities and exercises in the self-learning materials, learners are able to assess themselves using the feedback and answer sections at the end of each study unit. Unit assignments do not count towards the final grade, but serve the very important purpose of helping students develop the skills they need to pass the end-of-course examination.

The purpose of mock examinations is to help check learner readiness for end-of-course examinations. These also help to give the learner the necessary experience of responding to typical examination questions under examination conditions.

Challenges

The challenges in learner assessment experienced so far include the following:

- Assessment tends to be the same year after year. This makes the assignment not very valuable for new enrollees who may have had access to the assignment from their

relatives. BOCODOL has learned through experience that it is necessary to change assignments annually to assure their reliability and validity.

- In some instances, the assessment tasks tend to encourage surface learning rather than deep learning. This has resulted in learners engaging in cutting and pasting as they complete assignments.
- While flexibility is critical in open learning, the lack of assignment submission schedules has sometimes compromised the quality of learning through assignments.

Learner support services

BOCODOL delivers its mandate through the use of five strategically located regional centres that have a network of 92 learning centres spread across the country. The national coverage of the delivery system has ensured that even the most remote learners have access to open schooling through a remote learner support service created by the college.

The learner support division operationalises most of its work through a network of community study centres or learning centres across the country. Each study centre is assigned to one of the five strategically located regional centres. The functions of learner support executed through the learning centres fall into three categories: administrative support, academic support, and counselling support.

Learning centres are places where both learner-learner and tutor-learner interactions take place for the purpose of enhancing distance learning.

Three types of learning centres are in use: Community Study Centres, established in secondary schools, where an enrolment population of 50 or more learners exists regardless of what the learners are studying; Satellite Learning Centres, established mostly in primary schools and requiring an enrolment of 10 or more learners; and Study Groups, established in primary schools and having an enrolment of fewer than 10 learners.

For each of the learning centres, a memorandum of understanding is signed between the host school and BOCODOL on the shared use of facilities and other resources.

- Community Study Centres (CSCs) are managed and run by centre supervisors who are appointed by BOCODOL after receiving recommendations from the hosting school heads. These centres provide the following services: pre-enrolment counselling; enrolment; dispatching of study materials; induction; guidance and counselling; face-to-face tutorials; assignment submission and feedback; motivational seminars; weekend and vacation classes; information dissemination (e.g., examination registration); and examination skills workshops

  Learner leaders are expected to help the Supervisor and tutors in running the centre and taking care of the facilities. A centre code of conduct for learners outlining rules is available on site.

- Satellite Centres are co-ordinated by Satellite Co-ordinators appointed by BOCODOL upon the recommendation of the school heads. The co-ordinators organise and supervise learning groups at the centres, advise learners on group formation and discussion techniques, maintain learner records, and receive assignments and forward them to the regional Remote Learner Advisor (RLA). The co-ordinators also receive marked assignments from the RLA and pass them to learners. A typical Satellite Centre facilitates: learner group meetings and discussions; assignment writing and submission; weekend course tutorials; learner induction/motivation seminars; information dissemination; and examination skills workshops.

- Study Group Centres are managed by volunteers with permission of the school head, who secures facilities for the group to use for discussion and independent study. The volunteers facilitate: group formation to minimise isolation; peer help; assignment writing in a classroom environment; registration of needs to be addressed by the RLA when he or she visits; and growth in enrolment for possible conversion into a Satellite Centre.

Challenges

Among the challenges in the provision of learner support services:

- The western part of Botswana is geographically vast and sparsely populated and has a very difficult terrain that makes it difficult to deliver services to remote settlements.

- The population of the western side of Botswana is nomadic. The mobility of learners often leads to attrition.

- Despite the numerous inductions into ODL, learners generally expect to be taught as in conventional secondary schools.

- Use of English as a medium of teaching and learning often makes concepts difficult to explain to learners who are second-language speakers of English.

Use of ICT

The college uses information and communication technology (ICT) in the execution of most of its functions. For example, the development and production of course materials relies heavily on ICT. The procurement and distribution of course material records are also managed at Headquarters using ICT. Efforts are being made to explore e-learning where connectivity exists. However, course delivery in all learning centres is mainly print-based, complemented by face-to-face tutorial sessions, because the learning centres are not all connected to the Internet. Course assessment is not administered electronically as most learners do not have access to ICT. The management and recording of assessment and learner records are performed using a BOCODOL-customised information management system. Consultants were specifically engaged to design the system and to ensure that it was tailor-made to suit the needs of open schooling. BOCODOL has, over the years, developed its own systems as it is a separate entity from its parent ministry in terms of operations.

Support services are normally carried out face to face, except in some instances when telephone and cellphone support is provided. Online support through e-mail occurs rarely for the few learners who are connected. This is usually provided by Learner Tutor Co-ordinators.

Challenges

ICT infrastructural development is restricted to the eastern part of the country where there are very good telecommunication networks. The western part of the country is yet to be developed. Currently, ICT cannot widely be used to support and aid learning in all parts of the country. Another challenge is that even in places where connectivity exists, most learners cannot afford Internet access. They find costs to be prohibitive. It costs about US$2.00 to access Internet for 30 minutes. Many learners are also computer illiterate.

Staff training and development

Working through a staff development committee, the Human Resources Section of the college develops annual plans for training staff. It budgets accordingly for both short- and long-term training. The budget for staff development, however, is limited and accounts for less than 2% of BOCODOL's total budget.

Orientation or induction is provided to all new staff members, at which time the organisational culture and values are shared with them. Normally the induction programme is a long process that takes up to a year. New employees are usually grounded in ODL knowledge and skills by being enrolled in an ODL practitioners' certificate course (funded by the Commonwealth of Learning or by the college directly, and delivered through the University of South Africa). Otherwise, to promote efficiency at work, short courses are usually arranged and undertaken by staff to sharpen their competencies. Short-term staff training includes performance management, strategic planning, project management, quality assurance, and learner and records management systems. Long-term training is largely sponsored by the college for staff members whose qualifications fall short of the required minimum levels (usually resulting from changes of organisational requirements). More than 15 staff members completed referred training between 2003 and 2008 and have acquired qualifications ranging from undergraduate to doctoral level degrees.

Challenges

- Employees who enrol for distance education programmes take extraordinarily long periods to complete programmes because of other work pressure.
- It is an expensive undertaking to enrol employees on long-term programmes.

Quality control

The issue of quality is core to the business of the college. The college's quality endeavours are guided by a quality assurance policy that was developed under the guidance of a quality assurance expert. In terms of implementation, a Quality Advisory Committee provides leadership and advice on challenges. A full-fledged department has been established to provide technical expertise. The quality assurance policy not only guides each department or unit, but also sets standards. The policy is complemented by performance management system guidelines that require departments and individuals to articulate their annual operational plans and key performance areas.

To ensure quality performance, the college expects each staff member to see quality assurance as his or her own responsibility. Various means are being used to achieve this, including the documentation of work processes, self-performance assessment, departmental assessments and quality checks formally carried out by the college quality advisory committee. The work of the Quality Advisory Committee is complemented by the regular audits of financial transactions and work processes carried out by the Internal Audit Unit. In addition, BOCODOL has signed a Memorandum of Understanding with the Namibian College of Open Learning for, among other things, biennial quality audits between the two institutions. The latter audits are meant mainly to promote international best practice at both institutions.

Challenges

Challenges that relate to quality are being addressed by the college itself. These include:
- the delay in revising the self-learning materials and assignments; and
- the expense and time-consuming nature of doing quality audit checks in remote areas.

Cost, efficiency, sustainability and scalability

Open schooling costs are generally far lower than for conventional secondary education. Currently, for conventional schooling, the government meets all the costs of pupils' textbooks, stationery, full meals in boarding schools, and lunch for students who are not boarders. The costs met by government at a conventional secondary school also include salaries for teachers and support staff. Most of these costs (except for development, production and delivery of course materials) do not exist in open schooling. Whereas it costs the government P6,000 (or US$1,000.00) a year to educate one conventional secondary school student, it costs only P1,180 (or US$194.00) to cater for one open schooling learner per year. BOCODOL's open schooling model is thus five times less expensive than conventional schooling in Botswana, though costs associated with its use of conventional school facilities and services are not borne by BOCODOL.

Given the number of upgraders (currently about 60% of the total enrolment), the slow rate at which additional senior secondary schools are being built, and the prohibitive costs levied by the private providers of secondary education, the clientele for BOCODOL will arguably remain strong for a very long time. The planned diversification of the curriculum, to include vocational training at a distance, will also ensure that BOCODOL remains relevant and a major player in the development of human resources in Botswana.

The question of scalability currently lies with the government funding policy concerning school equivalency subjects: without additional funding, BOCODOL must continue to restrict enrolment. If the government found it difficult to continue providing the same level of grant, it would be possible for BOCODOL to charge tuition fees on a cost recovery basis. This, arguably, would enable BOCODOL to meet its operational costs and remain relevant. However, in terms of the vocational component, scalability is possible because it depends on demand – and that demand remains very strong.

To cut costs and remain effective in learner support services, the college was instrumental in getting stakeholders in education to agree from the beginning to a national policy on shared use of resources. The resources that are currently being shared include classroom facilities, human resources, libraries and teaching materials. The implementation of the policy on shared use of resources has led to cost-cutting, efficiency and sustainability of college operations. It has also enabled the college to access, at no charge, not only the classroom facilities of other providers, but also the human resources of those providers. Practising teachers from secondary schools are, for instance, used as part-time tutors and markers in open schooling and are only paid allowances. This has proven to be less expensive than engaging full-time tutors.

To ensure the cost-effectiveness of work processes, measures and steps have been put in place to outsource some college business operations that have the potential to escalate costs without adding commensurate value for money. Such operations are not the core business of open schooling, but impact heavily on the general operations (e.g., in security of premises and assets, landscaping, cleaning services, printing).

Challenges

The challenges include:

- BOCODOL's inability to charge cost-recovery fees on school equivalency programmes (because of the government's funding policy and because of limited funding) results in prospective enrollees' needs not being fully met.

- Rising inflation makes cost-cutting measures like outsourcing more expensive (though less expensive than were the college to provide the services), leading to increased operational costs.
- Scalability in terms of school equivalency programmes is currently difficult because it depends on government funding matching increased enrolment.

CONCLUSION: IMPLICATIONS FOR PUBLIC POLICY AND STRATEGIC PLANNING

As the BOCODOL case study suggests, there are many considerations that policy-makers and senior administrators need to address when planning for open schooling. Key among these:

- Complete national open schooling policies need to be developed to guide the operationalisation of open schooling – If well-supported, financially and otherwise, open schools can deliver benefits as good as those in conventional schools, thereby increasing access without sacrificing quality. It would, however, be necessary for any government willing to institutionalise open schooling to establish structures within its Ministry of Education for registration, regulation and quality assurance of open schools.

- To ensure sustained advocacy and resource mobilisation that will enable open schooling approaches to reach those who are disadvantaged and in difficult circumstances (e.g., prison inmates, disabled citizens, vulnerable women and children and those in very remote settlements and farms) institutional policies on supporting learners in special circumstances should be developed as a guide for practitioners and other stakeholders. The policies would help establish the criteria for identifying special needs learners and outline guidelines of supporting them. Such policies should have clear implementation, monitoring and evaluation strategies.

- Given that open schools cater to disadvantaged populations in most cases, governments should consider granting bursaries to impoverished learners as a way of ensuring higher completion rates.

- In the light of the factors that affect success rates, more research studies should be undertaken to establish the diverse profiles of open schools' learners, with a view to devising strategies that could minimise low performance and attrition.

- Given high demand for programmes and limited capacity, private providers should be encouraged to complement public-sector efforts. Dual-mode secondary schools should equally be encouraged and established. This would open access to a wider target audience while assuring stronger local oversight, with the schools' leadership being directly in control.

- There is an urgent need for governments to develop ICT infrastructure across respective countries so that open schooling learners may be supported variously and in line with the imperatives of contemporary ODL.

- Diversification of the curriculum to include vocational courses should be given priority in order to enhance the livelihoods of open schooling graduates. Subjects such as design and technology, metal work, leather work, home economics, tourism and hospitality should feature prominently in the open schooling curriculum to promote employability of graduates.

- Capacity-building initiatives by various countries should be scaled up in order for open schools to be self-sufficient in expertise for all aspects of ODL. Aggressive staff development programmes would go a long way in this respect.

- To support the quality delivery of open schooling, governments need to consider waving tax on allowances that are paid to tutors and part-time writers of interactive self-learning materials. This would promote retention of expertise and experience within open schools.

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CHAPTER 6

OPEN SCHOOLING IN EDUCATIONAL TRANSFORMATION: THE CASE OF THE NAMIBIAN COLLEGE OF OPEN LEARNING

Heroldt Vekaama Murangi

ABSTRACT

Namibia faces numerous challenges with regard to the provision of education at different levels. Key amongst these is the provision of secondary education to those who cannot be accommodated through conventional schools primarily because of their limited capacity. To expand access and increase capacity at the secondary level, the government established the Namibian College of Open Learning (NAMCOL) through an Act of Parliament in 1997. NAMCOL is a single-mode open and distance learning (ODL) institution offering the programme of secondary education to those wishing to study for the Junior Secondary Certificate (which is third year of the junior secondary phase) and the Namibia Senior Secondary Certificate (which is the exit level of the school career). The governing Act also directs the college to develop and offer programmes that would address the diverse training needs of the country. An average annual enrolment of 25,000 makes NAMCOL the largest educational institution in the country. The overall headcount at the secondary level equates to 40% of all learners enrolled in the secondary education phase in the country.

For the secondary education programme, NAMCOL follows the same national curriculum as offered in conventional schools and has to conform to the requirements laid down by the national examining body in order to enable learners to sit for national examinations.

NAMCOL is funded on a per-subject enrolment formula basis and the fundamental principle guiding the funding to NAMCOL is that the provision of secondary education through NAMCOL not be more expensive than for providing similar programmes through the conventional school system. Currently, the cost of a NAMCOL learner

is 65% of a traditional school learner. A blended learning approach is used in course delivery through self-instructional materials and face-to-face support. Print remains the primary teaching medium, with different multimedia used as supplementary to the print-based materials offered to learners. In developing and delivering its course content, NAMCOL relies heavily on teachers working in the conventional system. More than 1,300 teachers from that sector are also engaged by NAMCOL on a part-time, contractual basis.

BACKGROUND

Institutional profile

NAMCOL is a dedicated, single-mode open and distance learning (ODL) institution. It was established in 1997 to provide a programme of secondary education for those who cannot or do not wish to attend conventional schools to study for the Junior Secondary Certificate (grade 10) or the Namibia Senior Secondary Certificate (grade 12). Since 1998, the college introduced a range of professional and vocational programmes to further fulfil its mandate of addressing the diverse training needs of the Namibian people. Moreover, the college follows an incremental approach in the implementation of post-secondary programmes in community development, youth work and local government, with the programme in community development having been on offer since 1998. The enrolments for the vocational and professional programmes represent only 1% of the total college enrolments. From the total enrolments of 28,289 recorded in 2008, only 375 learners enrolled for these programmes.

The college remains the largest educational institution in Namibia, with an average annual enrolment of 25,000 learners, representing a full-time equivalency of about 14,000. The overall headcount at secondary level equates to 40% of all learners enrolled for the secondary phase in the country. NAMCOL's enrolment at Namibia Senior Secondary Certificate and Junior Secondary Certificate equate to 47% and 35%, respectively, of learners enrolling for the same levels in the conventional school system.

National context

Namibia occupies an area of 824,300 square kilometres and has a population of approximately 2 million. It is a low- to middle-income country, yet its GDP of US$7.57 billion is relatively high. However, the inequalities in the distribution of income are also high (UNDP 2008). The 2003/04 Namibia Household Income and Expenditure Survey (2006) showed high income disparity. According to the survey, the majority of the population (65%) and households (60%) are based in the rural areas, especially in the northern part of the country.

Namibia has 13 political regions and the Ministry of Education is represented in each one through a regional office. The country follows a 4:3:3:2 system in the provision of general education (four years of junior primary phase; three years of senior primary phase; three years of junior secondary phase; and two years of senior secondary phase). The average learner:teacher ratio in the conventional schools was recorded at 28.8 in 2006.

By 2006, Namibia had achieved a Net Enrolment Ratio of 92.5%, but today it retains the challenge of accommodating more learners at the secondary school level. Furthermore, the 2006 enrolment statistics of the Ministry of Education show that

402,529 learners enrolled for the primary phase, while only 152,637 enrolled for the secondary phase (Namibia Ministry of Education 2006a, p. 1). This shows the inability of the conventional system to accommodate many learners graduating from the primary education phase.

Legal and regulatory framework

Before independence in March 1990, several continuing and distance education initiatives were offered to Namibians in and outside the country. The Department of National Education and the Namibian Extension Unit were the two leading distance education providers available at the time. The Namibian Extension Unit was established in the early 1980s to provide basic education to Namibian refugees in Zambia and Angola. The distance education programme under the Department of National Education prepared learners for the National Senior Certificate. With independence, the government continued with these programmes under the newly established Department of Adult and Non-formal Education within the then Ministry of Basic Education and Culture.

In March 1992, the Ministry of Education and Culture commissioned a consultancy under the guidance of Florida State University to review reports and initiatives on the expansion of distance education in the country. The report, published in June of 1992, "Taking Education to the People", recommended the creation of a multipurpose Distance Education College with a high degree of autonomy and the statutory mandate to co-ordinate the development and delivery of distance education programmes at the pre-tertiary level. One of the early steps to be taken in establishing the Distance Education College was to include it in the new Education Act for Namibia (Ministry of Education and Culture 1992). In 1993, the Cabinet of the Republic mandated the line ministry to establish such an institution. NAMCOL was first established as a Directorate within the Ministry of Education in November 1994, though that was the first step toward creating an autonomous body. An Interim Development Board was constituted in 1994 by the Minister to put relevant legislation in place towards the establishment of the institution.

In 1997, NAMCOL was established as a statutory entity through legislation, Act No. 1 of 1997. The Act mandates the college to "contribute toward the social and economic development of Namibia by upgrading the educational levels of adults and out-of-school youth through programmes of open learning; by designing, developing and offering programmes to address the diverse educational needs of such adults and out-of-school youth; and by providing opportunities for adults and out-of-school youth to upgrade their professional and vocational skills, as well as their level of general education" (Government of the Republic of Namibia 1997).

The NAMCOL Act became fully operational on the April 1, 1998, when the college officially delinked from the Ministry of Education.

Governance

The NAMCOL Governing Board is the most strategic body at the institutional level and a key actor in decision-making processes. Members of the Governing Board are drawn from different sectors and are appointed by the Minister. The NAMCOL Act makes provision for the establishment of a National Learner Representative Council (NLRC). It is a statutory requirement that one elected member of the NLRC serve on the Governing Board. The Governing Board is viewed as an important arena for institutional change and has overall responsibility for providing guidance on matters of policy,

programmes and finances. Article 7 (1) of the NAMCOL Act clearly stipulates that the governance and general control of NAMCOL be vested in a Board of Governors appointed by the Minister of Education (Government of the Republic of Namibia 1997). However, the Board may submit any matter to the Minister for decision.

NAMCOL's governing model differs from that of conventional schools in terms of the level of decision-making. The NAMCOL Governing Board, as the highest decision-making body, ultimately decides on core matters such as organisational structure, tender approval, policy development and the appointment of management members below the level of Deputy Director. On the other hand, in the conventional system, the School Board has an advisory role and makes recommendations on various matters to the Permanent Secretary (who is the Accounting Officer in the Ministry of Education) for decision.

Challenges

The NAMCOL Act directs that upon recognition of the Learners' Representative Council (LRC), it shall elect one of its members as a member of the Board. NAMCOL has made good progress in establishing LRCs at each centre level. However, the inadequate resources to facilitate a joint session for all LRCs (each LRC consist of seven members) elected at more than 100 tutorial centres has made it impossible for the college to establish the NLRC that will ultimately elect one member to serve on the Board.

A second obstacle relates to the fact that a large number of learners enrol with the college for one academic year only, in order to improve their grades, while the term of office for the Board is three years. Consequently, the college is contemplating recommending an amendment to the Act so as to include a member from the National Youth Council[1] as the learners' representative on the Board.

Organisational model and culture

One of NAMCOL's greatest strengths is the decentralised nature of its activities. NAMCOL has a presence in most communities because of the more than 100 tutorial centres spread across the country and it adopted a four-region structure to oversee the implementation of programmes at the regional level. Each region is headed by a Regional Manager. The regions are divided into areas under the management of Area Co-ordinators who are responsible for a number of tutorial centres. The Head of Centre supervises tutors and is also responsible for the administration of activities at the centre. Members of the community where the centre is situated, particularly community leaders and parents, assist in the management of the centre through the Centre Management Committee (CMC), which is similar to a School Board in a conventional system. The CMC consists of representatives from learner, tutor and parent communities. Learners are also given the opportunity to get involved in the centre activities through a Learner Representative Council.

At Head Office, there are three main divisions: Management and Support Services (responsible for learner support, marketing, data management, human resources and research and evaluation); Programmes and Materials Development (with responsibility for designing, developing and revising courses using a variety of media); and Finance and Administration (responsible for finances, logistics, administration and information technology)

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1. The National Youth Council of Namibia was established through an Act of Parliament in March 1994 to address the challenges, opportunities and obstacles facing young people in Namibia.

The college staff complement consists of more than 70 members in the categories of: managerial, professional, technical and administrative. In developing and delivering its course content, NAMCOL relies heavily on teachers working in the conventional system: more than 1,300 teachers from that sector are also engaged by NAMCOL on a part-time, contractual basis.

Tables 6.1 and 6.2 show the demographic profile of full-time staff and the different categories of part-time staff engaged by NAMCOL in 2008.

Table 6.1: Full-time staff engaged by NAMCOL, 2008.

Occupational Category	Total Employees
Total full-time staff	71
Managerial	14
Professional	21
Technical	12
Administrative	24

Table 6.2: Part-time, contract and temporary staff engaged by NAMCOL, 2008.

Staff Category	Total Employees
Consultants/advisors/contract appointment	5
Heads of tutorial centres	103
Tutors	1,166
Course/assignment writers	22
Editors/proofreaders	32
Moderators	30
Casual workers	33

Challenges

The Centre Management Committee performs functions similar to those of a School Board in the conventional system. Key functions include maintaining discipline, recruiting tutors, administering centre budgets and promoting activities at the centre. However, the lack of parental involvement in centre activities impedes the performance of Centre Management Committees.

The rapid growth experienced over the years requires the expansion of the college's organisational structure. However, NAMCOL has been restricted in optimally addressing

this need by its obligation to abide by governmental policies on staffing that do not sufficiently take into account NAMCOL's non-conventional approach to the provision of schooling. For example, the main funding agent (government) demands that personnel expenditures at publicly funded institutions not exceed 60% of the total budget. A multi-tasking approach has been adopted to keep personnel expenditures at the required level, with the college also appointing more part-time staff in course development and delivery than it might otherwise choose to do.

Funding model

As a state-supported educational institution, NAMCOL is eligible for government funding to ensure that programmes offered are easily accessible to the vast majority of Namibians. In the absence of any government subsidy, the college would not be able to fulfil its social mandate, and so the majority of the previously disadvantaged members of the society would be denied access to NAMCOL courses. The basis for funding the college's secondary education programme is captured in Section 20 (1) of the NAMCOL Act, which stipulates:

> "The funds of NAMCOL shall consist of –
>
> (i) all moneys appropriated by Parliament for the realisation of the objects of NAMCOL;
>
> (ii) subsidies granted by the Minister, with the concurrence of the Minister of Finance, in respect of capital and normal recurrent expenditures of NAMCOL on the basis of principles mutually agreed upon by the Minister, the Minister of Finance and NAMCOL" (Government of the Republic of Namibia 1997)."

The increased demand for secondary education and the limited financial resources from government are key determinants affecting open and distance learning (ODL) initiatives. However, the key principle for funding the college is that the provision of secondary education through NAMCOL not be more expensive than for providing secondary education through the traditional school system. NAMCOL is funded on a per-subject[2] enrolment formula basis and the arrangement for funding is enshrined in the Memorandum of Agreement mutually agreed to by the Ministry of Education and the college. An input-based (number of subject enrolments) per full-time equivalent approach has been agreed to with the line ministry. For each subject enrolment, the college gets a grant as a proportion of the cost to government of providing a similar service to a learner at a conventional school. The ratio applied to NAMCOL is 65% of a traditional school learner. This type of funding arrangement is advantageous to NAMCOL when compared to an output-based funding formula model (e.g., subject completers), since service provision begins the first day a learner enrols at the college.

Additionally, the agreement makes provision for NAMCOL to access funding for capital projects, such as for the construction of buildings and for the development of any new project. NAMCOL requests for capital funding are mainly for the construction of regional offices, since rented and ministerial facilities are otherwise used. In addition to the annual government grant, the college recovers, through compulsory learner fees, 20% or more of the cost of providing its Junior Secondary Certificate and Namibia Senior Secondary Certificate courses. Learners in conventional schools make voluntary contribution

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2. In the NAMCOL context, *subject* and *course* are synonymous. A learner enrols in a subject such as Junior Secondary Certificate Mathematics or Namibia Senior Secondary Certificate Mathematics. This represents one course, consisting of several units or modules.

through the school development fund. Learners of parents who are unable to make contribution to the school development fund cannot be denied access to schools.

Du Vivier's (2007) comparison of fees for NAMCOL's secondary education programme with school development fund contributions in the conventional schooling sector revealed that it costs less to study with NAMCOL than to complete the same course in an urban secondary school. However, NAMCOL learners are paying more than those learners attached to rural secondary schools (especially those at the junior secondary phase), though conventional school fees in northern Namibia are among the lowest in the country. Nevertheless, when one takes into account other additional expenses that learners in conventional schools are paying (for school uniforms, books, stationery and boarding expenses), the cost of full-time secondary education becomes higher than the NAMCOL fees.

Challenges

The principal drawback of the current funding arrangement is that funding is based on the number of subject enrolments of the previous academic year. Should there be an increase in subject enrolments, the college experiences a funding gap and it becomes difficult to enhance the provision of effective learner support services. In her report on the financing and costing of NAMCOL (2005), Mensah argued that the existing funding formula does not allow for growth and the only responsible way of addressing this dilemma is to place a ceiling on the number of enrolments in order to contain the variable costs. She further argued that such decisions contradict the mandate of widening access.

Furthermore, public funding of NAMCOL is based on budget estimates and not on the actual operational expenditure of the conventional secondary education. This impacts adversely on the subsidy allocated to NAMCOL since, in many instances, expenditures on the conventional secondary education exceed the actual budget.

Lastly, the existing formula does not provide funding for the development of new courses or study materials. As a result, the revision of existing courses or the development of new courses is financed from the existing subsidy, which is intended for normal recurrent expenditure. In addition, building the capacity of staff in implementing ODL programmes is key to NAMCOL. However, the current subsidy does not provide for this activity. This kind of arrangement is not sustainable.

Student success rate

The standardised national curriculum ensures that NAMCOL learners write the same public examinations as their counterparts in the formal system, at the same time and, in most instances, at the same venues. The Directorate of National Examinations and Assessment (DNEA) is mandated to administer public examinations and to release examinations results. DNEA releases the results under the categories full-time (from conventional schools) and part-time (from private providers and NAMCOL). It is evident from the analysis of previous years' results that the college observed a significant improvement in the overall performance of part-time candidates in the national examinations.

Comparatively, full-time learners perform slightly better than part-time learners, though the college showed a significant improvement in the number of graded (passing) entries over the years. In 2007, pass rates of 91% and 83% were recorded for grades 10 and 12, respectively, compared with 76% and 67% for the corresponding grades achieved in 1998. Full-time candidates achieved pass rates of 94% and 93% for grades 10 and 12,

respectively, in 2007. The grade 10 results of 2007 showed that 22% of full-time candidates achieved a C-grade and above, compared to 9% for part-time candidates. In terms of Grade 12, full-time and part-time candidates achieved 21% and 9% of C-grade and above, respectively. Du Vivier (2007) argues that "the relatively large number of ungraded examination subjects results reported for NAMCOL learners can be attributed to the fact that the College draws its student body from those who have had the least success at school" (p. 27).

When drawing performance comparisons between the conventional system and NAMCOL, one must take into account that the majority of learners are entering this new ODL environment with low self-esteem and that might affect their performance during national examinations.

Figures 6.1 and 6.2 show the overall performance of part-time candidates in Junior Secondary Certificate and Namibia Senior Secondary Certificate (Ordinary Level) for the period 1998–2007.

Challenges

Though improvement in the number of graded entries (passing) was observed over the years, the challenge for NAMCOL is to intensify its learner support strategies to push a large proportion of learners to C-grade and above. Failure to improve on the higher grades will subject the college to criticism on poor performance in national examinations, since comparisons will inevitably be drawn with the conventional system results.

Low passing grades prevent learners from meeting the minimum academic requirements for gaining entry to post-secondary programmes or for re-entering the conventional system to gain admission to grade 11. The government also requires a minimum of 20 points on the Ministry of Education grading scale for grade 12 graduates to be considered for employment in the public service. Amassing low passing grades will not facilitate this.
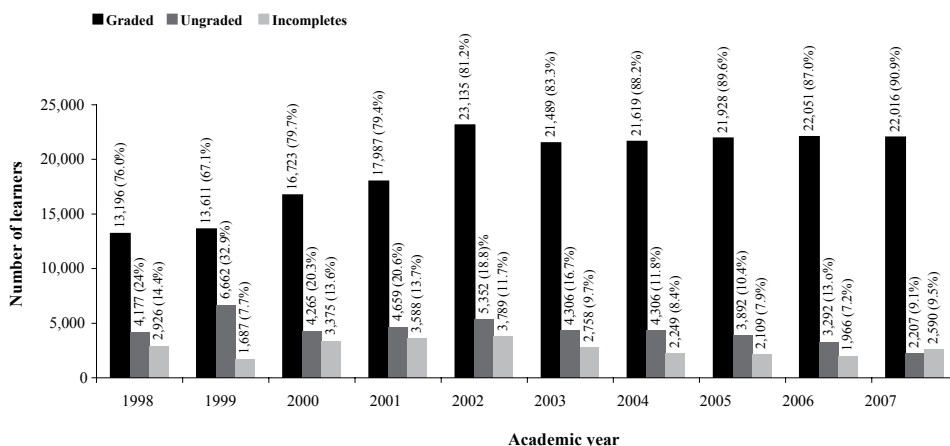

Figure 6.1: *Junior Secondary Certificate examination results for part-time candidates, 1998–2007.[a]*

a   While ungraded represents failures, incomplete represents those who enrolled with the college, started their subject, but chose not to sit the examination.
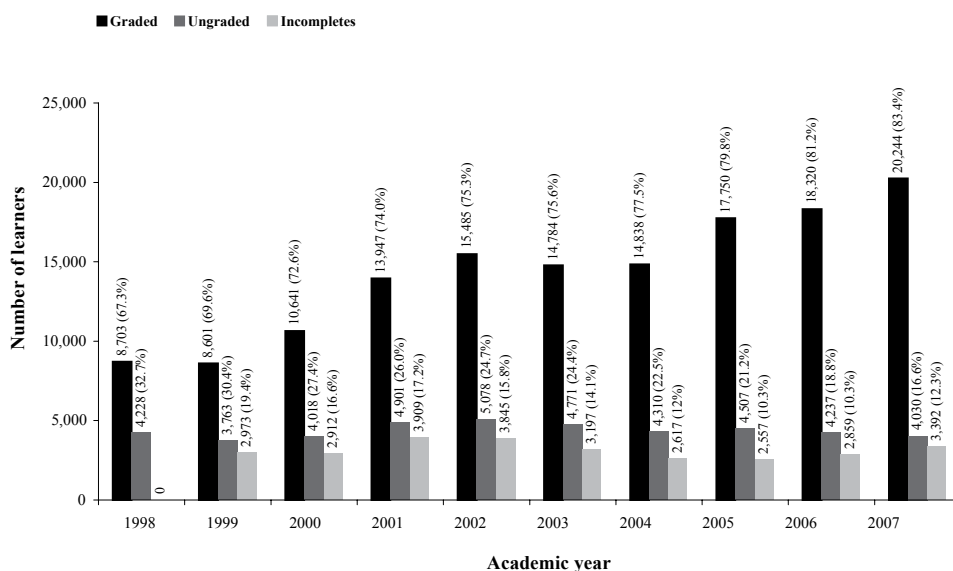
Figure 6.2: Namibia Senior Secondary Certificate examination results for part-time candidates, 1998–2007.

KEY FEATURES

Target audience and curriculum

NAMCOL targets out-of-school youth and adults who could not be accommodated through the conventional system for diverse reasons. A high proportion of NAMCOL learners did not complete, or did not successfully complete, within the traditional system and now want to obtain the points required to be integrated into the formal system or to pursue further studies at post-secondary level.[3] More female learners than male learners enrol for the secondary education programme at NAMCOL.

The 2007 Statistical Digest showed that out of the total enrolment of 28,432, about 65% (18,397) were female and 35% (10,035) were male. In the conventional education system, the percentage of female and male enrolment at the secondary phase was 49.9% and 51.8%, respectively, in 2006 (Ministry of Education 2006). The college plans to conduct a study in 2009 to determine the reasons for female learners' high enrolment. The age distribution in the 2007 Digest showed that most learners fall into the age bracket 18–34, which represents 95.6% of the total learner population (NAMCOL 2007). Most learners in the traditional secondary education phase fall in the age bracket of 15–18. The occupation data show that less than 1% of learners are employed or have independent sources of income. Considering the socio-economic status of learners, a scholarship scheme was introduced in 2008 to cater for the needy learners.

Enrolments have risen rapidly over the last 10 years, though they appeared to level out in 2006. Figure 6.3 maps the 12-year enrolment trend for the secondary education programme.

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3. Each grade a learner obtains in the national examinations carries a weight (e.g., A-grade equates to 7 points; the lowest grade, G-grade, equates to 1 point). A learner sitting for the Junior Secondary Certificate national examination requires 23 points to proceed to grade 11.
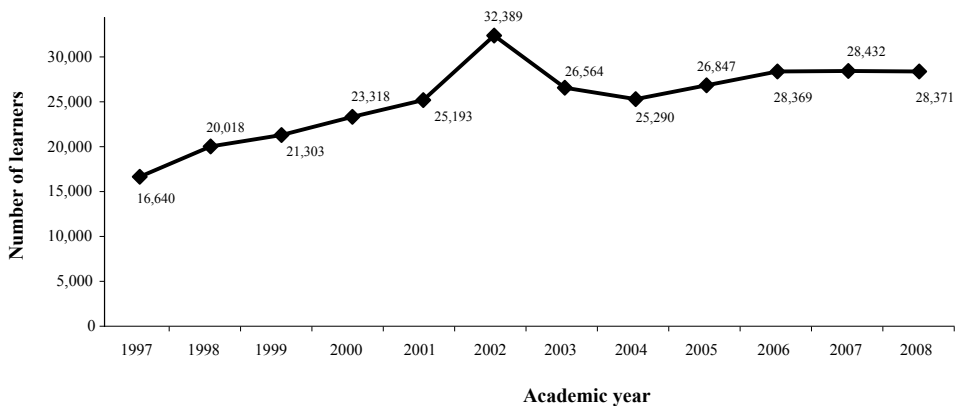
Figure 6.3: Secondary education enrolments, 1997–2008.

All secondary education learners in the country follow the same curriculum accepted by the National Examinations, Assessment and Certification Board. The National Institute for Educational Development (NIED) is charged with the responsibility of implementing national curriculum. NAMCOL enjoys statutory representation on various curriculum panels that review curricula, instructional materials, syllabi and assessment schemes. The same curriculum allows learners to flexibly transfer between NAMCOL and the formal system without being disadvantaged. In 2007, about 12% of learners re-entered the formal system at grade 11 level after successful completion of grade 10 through NAMCOL (Mayumbelo et al. 2008).

NAMCOL offers the final year (grade 10) of the three-year junior secondary phase. For learners to be admitted to grade 10, they should show proof of subject passes at the second year (grade 9) of the junior secondary phase or of having previously failed the subjects at the grade 10 level. A maximum of six subjects is required to qualify a learner for the full Junior Secondary Certificate through NAMCOL. Nine subjects are taken through the conventional system, with the best six qualifying learners for admission to the first year (grade 11) of the senior secondary phase. For the senior secondary curriculum, six subjects are a prerequisite either through NAMCOL or in conventional schools. However, in conventional schools, the subjects in this curriculum are taught over a two-year period, while the curriculum for both grades (grades 11 and 12) at NAMCOL is integrated and offered in one academic year. In both grades 10 and 12, NAMCOL learners may take only a maximum of three subjects if they are taking each subject for the first time at that level. Nevertheless, "re-sit" candidates are allowed to take the maximum six subjects in one academic year.[4]

Challenges

- The National Institute for Educational Development (NIED) follows a three-year revision cycle of the general education curriculum and syllabi. The revision cycle causes NAMCOL to end up with large quantities of study materials that can no longer be issued to learners. The change in the curriculum and syllabi also result in unforeseen increases in the costs incurred by the college to provide revised materials in the affected subjects. No funds are provided by the ministry for the development of new courses or revision of existing courses.

- The Ministry of Education's 15-year strategic plan (ETSIP) proposes the expansion of the conventional secondary education in order to accommodate large numbers

4. A "re-sit" candidate is a learner who repeats a subject at the same level.

of learners who otherwise would have to enrol with NAMCOL to access secondary education. The government aims to increase the number of places at senior secondary level from the current 29,000 to 40,000 by the year 2010. NAMCOL's market size is significantly at risk both with the implementation of this strategic plan and with pressure from the general public and political office-bearers to allow grade 10 failures to repeat though the conventional school system. The same can be said about the grade 12 failures. Hence, there is a need for NAMCOL to diversify its programme offering to further address the diverse training needs in the country and thereby maintain economies of scale.

Degree of openness

Admission to NAMCOL remains open to all without regard to gender, race, colour or health status. However, there are limitations in terms of the degree of openness. The programme of secondary education offered by the college is subjected to the requirements as laid down by the National Examinations, Assessment and Certification Board. Tuition provision and national examinations are heavily subsidised by the government, and it is therefore the college policy not to enrol learners who do not meet the requirements established by the National Examinations Board, as these learners would not be eligible to sit for public examinations. For candidates to be eligible for a public examination, they have to register with an accredited service provider (approved by the Ministry of Education to provide tuition) and they have to receive tuition for at least one year (8–9 months) in the subjects they intend to register for.

These requirements also restrict the college from having flexibility in enrolment. Enrolment is conducted between January and March each year to allow enough time for tuition arrangements to be made. This also makes the self-pacing of courses impossible since learners are compelled to sit for the examinations during October/November of each year. This period of tuition applies equally to NAMCOL learners, regardless of whether they opted for the contact or non-contact mode of delivery (see "Course Delivery Model" below). Moreover, first-time takers (attempting subjects for the very first time) are not allowed to take more than three subjects for the year, though re-sit candidates (repeating subjects) are allowed up to a maximum of six subjects.

Further restrictions relate to admission and concern the level of academic background required before learners are considered for enrolment at junior and senior secondary levels through NAMCOL. To be considered for the junior secondary phase, a learner should show proof of subject passes at the grade 9 level or proof of subject failures at the grade 10 level. The minimum academic requirement for grade 12 is subject passes at the grade 10 level.

Another limitation relates to NAMCOL's incapacity to accommodate visually impaired learners. The cost to translate print-based materials into Braille is exorbitant, but discussion has started with the ministry to request for funding in this regard.

Lastly, the financial position of learners (and of their parents and relatives) or the ability of learners to pay for services provided by NAMCOL is another limitation with regard to the degree of openness. Since less than 1% of learners are engaged in paid jobs or have other sources of income, the current fees for the secondary education programme have reached the point that is beyond the means of some potential learners. As a way of accommodating the most disadvantaged learners, the college has introduced a scholarship scheme during the 2008 academic year, as recommended by Du Vivier (2007). The emphasis of the scholarship scheme is placed on economic disadvantage and special consideration is given to orphans and vulnerable children, those living with HIV and

AIDS or other severely disadvantaged groups. Seventeen scholarships were awarded in 2008. The ultimate objective is to increase the allocation in order to accommodate more needy learners at all tutorial centres. The scholarships will be based on the proportion of learners enrolled in a particular region.

Challenges

A principal challenge relates to the admission of learners into NAMCOL's programmes. All ODL providers of the secondary education programme must adhere to the requirements of the national examining body, since learners are heavily subsidised by the State and must satisfy the requirements to be eligible to sit the national examinations. Though the college has been established to broaden access and to address issues of equity, the current requirements are still denying many Namibians the opportunity to gain qualifications. The college's policy on the Recognition of Prior Learning is at an advanced stage and will recognise the knowledge, skills and experience Namibians have gained through various forms of learning (formal, non-formal and informal means). This will enable them to gain access to programmes offered even though they do not meet the minimum requirements laid down by the national examining body. A committee – consisting of representatives from NAMCOL, DNEA, NIED and the ministry's directorate of Adult Education (DAE) – has been established to articulate the admission requirements of those who cannot enter NAMCOL programmes because of the existing entry requirements. The college's Recognition of Prior Learning policy will also form the basis for discussion. The recommendations on the new entry requirements will be considered by the National Examination, Assessment and Certification Board.

Although NAMCOL plays an important complementary role, the current education system is inflexible in allowing learners within the conventional schools to take some subjects through NAMCOL or other ODL providers. This arrangement would alleviate problems that conventional schools are facing, such as timetable conflicts and lack of teachers. Also, a comparative analysis of the results of full-time learners taking subjects through the conventional mode and NAMCOL would yield interesting results for policy-makers in terms of indicating the effectiveness of the two systems.

Curriculum development and production model

Although NAMCOL uses different media in course delivery, print remains the primary teaching medium. The House Style Manual developed by the Programmes and Material Development division outlines various steps in the production process of print-based materials. Key procedures encapsulated in the House Style Manual include planning, development, writing, production, packing and dispatch of instructional materials. Guidelines for the development and implementation of an e-learning strategy are stipulated in a document jointly developed by NAMCOL and the South African Institute for Distance Education (SAIDE) with the financial support of UNESCO.

The college's development process involves a self-contained guide, a textbook guide, an adapted guide and a revised guide (NAMCOL 2008). Considering the socio-economic conditions of learners as well as the physical separation of learners from the teachers, the self-contained guides are the most preferred option since learners can use these guides without any prescribed textbooks. Self-contained study guides are found to be user-friendly and also promote independent learning.

The use of copyrighted materials required during the writing stage is cleared and NAMCOL's own copyright in its materials is secured.

To avoid the cost of hiring full-time staff in the development process, the college contracts qualified and experienced teachers from the formal system on a part-time basis to develop or revise materials. The Programme Developers co-ordinate the development process and also act as instructional designers. Apart from the Programme Developers and Multimedia Technicians (previously Desktop Publishing Technicians), the rest of the Course Development Team are contracted staff and include writers, illustrators, and content and language editors. The Multimedia Technicians design covers and do layout of materials before job cards are opened for printing.

To minimise cost in the development and production process, the college enters into collaborative arrangements with publishers. The self-contained study materials for the senior secondary phase (Namibia Senior Secondary Certificate) have been developed in conjunction with Cambridge University Press, which is responsible for printing the study material and selling it to NAMCOL at a discounted rate. NAMCOL enjoys sole exclusive rights for the marketing and selling of these materials in Namibia.

Bulk photocopying (of assignments, tutorial letters and study programmes) and printing of grade 10 study materials are outsourced through tender arrangements. Upon delivery from printers, materials are checked for quality before the packing and dispatch exercises start.

In 2004, the Ministry of Education initiated the education radio project to enhance education radio broadcasting in the country. NAMCOL was assigned to manage the project on behalf of the ministry and other publicly funded ODL providers. An agreement has been signed between the ministry and the National Broadcaster to air these programmes free of charge. NAMCOL's radio programmes are used to supplement the printed course materials made available to learners. The subject content for the radio programmes is derived from key areas highlighted by examiners after the national examinations. Since 2006, a total of 136 radio programmes have been developed and broadcast through the national broadcaster and other community radio stations. A recent impact assessment of the "Education Radio Project" confirmed that the project has made headway in terms of building the capacity of staff in script writing, editing and recording. The content and flow of materials was also considered as being of good (though uneven) quality, especially with regard to narration style and voice. Recommendations from the impact study are being addressed.

Mayumbelo et al. (2008) stated that "one of the beneficial spin-offs of the Curriculum synergy between NAMCOL and formal education sector can be observed in the area of instructional material development." The instructional materials developed by NAMCOL for its distance education learners are found to be of high quality and have subsequently been approved by NIED for use in conventional schools. Our observation is that tutors employed at tuition centres are making extensive use of materials developed by NAMCOL in their regular teaching. This transfer of skill from NAMCOL into the formal school system is a hidden cost benefit for the education system as rightly identified by Rumble (2006).

Challenges

NAMCOL contracts on a part-time basis, teachers from conventional schools to work as course writers and content and language editors on the production team. Though agreements are signed with part-time writers, some writers fail to deliver according to the production schedule.[5] Penalty and bonus clauses are included in the agreements to

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5. The course development schedule outlines the tasks of each member on a team in the development of the course.

encourage writers to submit the drafts and revised texts in a satisfactory format before the deadlines stipulated in the production schedule.

The college has a staffing complement of eight staff members who co-ordinate the development and revision of courses offered at the college. As a result, the same staff are trained for the different media (print, audio and video), and staff find it difficult to specialise in one particular area.

Course delivery model

NAMCOL uses mostly a blended learning approach for course delivery, primarily involving self-instructional materials and face-to-face support. As NAMCOL acknowledges that the learner is the focal point of the learning process, a learner-centred approach to education is adopted. The course materials are developed in such a way to encourage a learner to work independently. A facilitative learning approach is used during face-to-face contact sessions since it fosters independent learning amongst learners.

Initially, the secondary education programme was offered through two different modes of study: distance and traditional classroom teaching. Learners who opted for the distance mode of study were provided with self-instructional learning materials, tutor-marked assignments, and vacation workshops twice a year to meet tutors and fellow learners. A country-wide consultation on the course delivery model was conducted and the strengths of the two modes of study were combined when the college adopted the Open Mode of Study in 2004. The two options currently offered to learners are the Contact Open Mode and the Non-Contact Open Mode, with about 81% opting for the first and fewer than 20% for the latter. Contact Open Mode learners have access to weekly tutorials while non-contact learners benefit from vacation workshops that are held twice a year. Through the Open Mode of Study, learners are offered a comprehensive package of services that include:

- a one-day orientation workshop;
- a full set of self-instructional materials and/or textbooks in each subject;
- a copy of the NAMCOL *Good Study Guide*;
- five (Junior Secondary Certificate) and two (Namibia Senior Secondary Certificate) hours of classroom tuition per week a subject over 26 weeks (for learners opting for the Contact Open Mode);
- two vacation workshops a year (primarily for Non-Contact Open Mode learners, but also for those in Contact Open Mode who were unable to attend weekly tutorials);
- three assignments per subject, set nationally but marked by tutors at face-to-face centres; and
- access to self-supervised study halls for learners (in Contact Open Mode).

NAMCOL makes use of the formal school infrastructure for its contact sessions. A centre can operate as a tuition centre if the number of learners enrolled is more than enough to justify the establishment of a subject class. At least three groups of 30 learners are needed for the centre to operate as a tuition centre. Learners who enrolled at a centre which failed to meet the requirements to become a tuition centre are advised to approach other centres for tuition or to opt for the Non-Contact Open Mode.

Challenges

- Although NAMCOL advocates a facilitative learning approach in course delivery, the effectiveness of this approach is questionable because teachers used for this purpose are from the conventional schools and tend to lean towards the traditional way of teaching through "chalk and talk." There is also strong demand from learners for the traditional way of teaching given that they are products of the traditional system. Learner-centredness and independent learning – both key principles of ODL – are being compromised.

- There is a high expectation by the general public that NAMCOL should increase the number of contact sessions. However, there is no empirical evidence that increase in contact sessions will lead to improved results. Increased contact sessions can also affect the personnel budget since tutors are compensated for the hours they are actively engaged at tutorial centres.

Learner assessment

Both formative and summative ways of assessment are conducted. Included in the learner study packs are three assignments per subject which learners are required to complete. Assignments are one way that tutors and learners can assess whether learning is taking place. The set of assignments are revised annually by moderators and are marked by local tutors. To "quality assure" the marking process, 10% from each batch of marked assignments is moderated by moderators and quality control measures are in place to ensure that correct grades are recorded on the learner record database. Marks obtained through assignments contribute to the final mark for the junior secondary phase. For the senior secondary phase, learners studying for languages are required to do oral assessment. Learners studying for Agriculture at senior secondary phase carry out six practical assignments in addition to the three assignments.

In terms of summative assessment, NAMCOL learners write the same public examination as their counterparts in the formal system, in keeping with the requirements laid down by the national examining body in the Ministry of Education. NAMCOL learners are responsible for enrolling themselves for the Junior Secondary Certificate and Namibia Senior Secondary Certificate national examinations and for paying fees through the national examining body. The registration for the national examinations follows immediately after learners have registered for tuition with education service providers. Learners are required to show proof of registration with service providers before being considered for national examinations registration.

Challenges

Administration of national examinations is the competency of the Directorate National Examinations and Assessment (DNEA) in the Ministry of Education. The appointment of officials to register learners and administer national examinations is co-ordinated by the ministry. Some examinations officials are not very supportive to NAMCOL learners who they regard as inferior to their counterparts in conventional schools. On an annual basis, several cases of learners who could not sit for national examinations because of negligence by examinations officials are being reported. As a result, a full year of study can be wasted because the system does not make provision for supplementary examinations to cater for those who missed out on the initial examination.

The assignments are set by part-time moderators who are qualified and experienced teachers from conventional schools. The quality of assignments in a few subjects is

sometimes questionable despite the chain of mechanisms in place to provide quality assurance of the assessment tools. Some part-time staff are motivated by additional income and pay less attention to the quality of service delivery – hence, the submission of assessment tools that do not always meet the required standards set by NAMCOL.

Learner support services

NAMCOL uses a blended learning approach as part of its provision of learner support.

Support to learners must be ongoing, starting during enrolment and continuing for the duration of the course. Non-academic support services offered to learners include orientation workshops at the beginning of each academic year and provision of the NAMCOL *Good Study Guide*, which gives learners study skills and important hints on how to prepare for examinations. Support through the use of short message sending (SMS) has also been found to be effective, with SMS being widely used as a tool to communicate reminders and urgent information to learners and tutors.

Academic support includes face-to-face tutorial support as well as other innovations through multimedia technology. Multimedia content is used primarily to supplement print-based materials provided to learners in some subjects. Feedback on tutor-marked assignments is another critical support system, serving as a platform of dialogue between learner and tutor.

To foster collaboration and networking in ODL, the Namibian Open Learning Network Trust (NOLNet) was established in 2001 between the publicly funded ODL institutions and the Ministry of Education. NOLNet's purpose is to share ODL expertise and resources and avoid duplication of efforts. Therefore, in addition to the direct support from the college, learners have access to 49 NOLNet centres (existing libraries, resource and outreach centres of government ministries, and partner institutions) spread across the country where learners can access resources materials, IT equipment, Internet and e-mail facilities.

Challenges

A large proportion of NAMCOL learners were previously attached to formal schooling where daily contact with teachers and fellow learners was prominent. NAMCOL is a completely new environment for them and requires high levels of discipline and ability to work independently, which many learners may not have. This causes frustration to some learners, and the obvious way out is to drop out of the programme.[6] Ongoing counselling and academic development (including study skills) are key ingredients for the retention of the learners.

Use of information communication technology (ICT)

NAMCOL recognises ICTs as important tools to enhance access, strengthen operational systems, and improve delivery systems. To enhance communication and improve efficiency, all staff at head office and some at regional level have access to Internet and e-mail facilities. Plans are under way to get all regional office staff connected in the near future.

In terms of course delivery, NAMCOL affirms the use of print as the primary medium. Multimedia includes interactive computer-based, video content and audio. All is

6. A "dropout" is a NAMCOL subject enrolment that cannot be traced as an examination subject entry at the appropriate level, or a subject entry that is given an "incomplete" mark because the candidate failed to complete all the requirements for the examination (NAMCOL 2007).

complementary to the print-based materials offered to learners. The college adds value to the print-based materials by addressing, through alternative media-specific areas of the curriculum identified as challenging to learners based on the examiners' reports released after national examinations. With the financial support from UNESCO, the college has developed a series of interactive digital lessons in a few subjects. Plans are under way to expand this to other subjects. Audio content is also developed through radio and audiocassettes. The ultimate objective in future would be to develop multimedia content that is independent from print, thus enabling learners to make choices on the type of media they use when they engage in programmes offered by NAMCOL. However, ongoing assessment is imperative to determine the type of media learners need as well as their access to technology.

To address the issue of limited resources in science subjects, multimedia resource packs in Mathematics and Physical Science were also developed for use by NAMCOL tutors, as well as teachers in formal schools.

Learner registration and learner assessment records are managed through the learner record database. The learner record database, finance and human resource systems are integrated to facilitate payments of part-time staff. Through NAMCOL's learner record database, the data from the national examinations intake is matched with NAMCOL's learner enrolment entries. This facilitates the electronic transfer of continuous assessment marks for the junior secondary phase to the national examinations department in the Ministry of Education. The process of matching data obliges the college to produce its own examinations results. The national examining body releases all results from all providers outside the conventional schools under the same category – results for part-time candidates.

Through NOLNet all partner institutions will implement a new learning management system in 2009. The system is intended to improve learner support through online registration and online access to tutors and other services. However, the implementation of these remains a big challenge for NAMCOL. The system will be installed and managed by the IT technicians at the various institutions.

Challenges

NAMCOL's overall strategy in ICTs is incremental, since the college acknowledges the following limitations and challenges inherent in the use of multimedia resources in the Namibian context:

- "A lack of infrastructure and digital equipment poses significant challenges with regard to access. The current funding is inadequate to cater to all needs, and this complicates evergreening initiatives to upgrade, purchase and replace equipment.
- "The current reliance on national broadcasters (especially television broadcasters) represents certain risks given issues pertaining to costs and time slots that are available.
- "NAMCOL lacks many of the necessary skills and capacities necessary to embark on full-scale multimedia content development" NAMCOL 2008a).

Although staff benefit through capacity-building initiatives arranged by the NOLNet E-learning Centre, so far only two staff members have qualified to become accredited e-learning facilitators. Without external support, the college would not be able to equip staff to embark on full-scale multi-content development.

As at any other educational institution, improved learner support is of cardinal importance through the implementation of a learning management system. However, access to technology among learners and tutors is the key detrimental factor that will affect the implementation of the learning management system.

Staff training and development

Ongoing professional development and training of staff is vital for the success of any dedicated ODL institution. Effective development and delivery of ODL programmes require appropriate systems of support for both part-time and full-time staff, and this at policy, materials and learner support levels. NAMCOL uses part-time staff, usually drawn from the traditional education system. They have relevant expertise in subject matters and are also teaching subjects at same level in conventional schools. In many instances, part-time staff are familiar with the conventional way of course delivery and therefore need to adapt their teaching techniques for ODL environment.

Another capacity required is the ability to develop effective instructional materials for NAMCOL learners. As for any other distance education institution, the challenge for NAMCOL is to ensure that quality distance education materials are developed and produced in time for use by learners at enrolment. The course development process at NAMCOL is a team effort involving a range of staff (writers, language and content editors, illustrators, instructional designers and Multimedia Technicians) who require training. The Programme Developers co-ordinate and facilitate the training of Course Teams by using the House Style manual developed for that purpose. Normally the training intervention is conducted over a weekend session before the writing exercise begins. Writer's guides and NAMCOL's copyrights policy are key documents discussed during training.

Tutors attached to tutorial centres are the face of the institution and need to understand the nature of learners they are engaged with and be willing to provide ongoing support. As tutors are subject experts, not much training is done in terms of content, but emphasis during training is placed on ODL practices and NAMCOL's procedures. Also, a thorough understanding of the principle of learner-centeredness and the need to act as facilitators are critical areas addressed during tutor training. The Area Co-ordinators in the regions co-ordinate the training for tutors and Heads of Centres in their areas of jurisdiction, with ongoing professional development for tutors mostly occurring over weekends. A *Training Guide for Tutors and Heads of Centres* has been developed to facilitate the training of part-time staff in the regions. This guide is self-instructional and has been designed according to open learning principles. Tutors and Heads of Centres can work through the training guide at their own pace and also at times convenient to them.

To motivate part-time staff to attend training, the college has introduced an attendance incentive fee.

A comprehensive training needs analysis, conducted every second year, and the outcome from the performance management system are used as guiding instruments to inform the training needs for full-time staff. Areas for training are built into NAMCOL's annual training calendar approved by the Management Team. On average, each member of staff spends two weeks on training during the year. In addition, two staff members are identified each year to participate in the Certificate for Distance Education Practitioners, which is partially sponsored by COL and offered through the University of South Africa (UNISA). Twelve staff members have completed the certificate to date. Experiences from external training interventions attended by staff are shared through weekly continuous professional development sessions. These sessions are also used to consult staff on policy formulation and to review existing policies.

Only 0.7% of the operating budget is spent on the training of staff.

Challenges

All ODL institutions require different ways of orienting, teaching and motivating learners, and all ODL practitioners must have access to professional development. NAMCOL believes that providing professional development to tutors increases the likelihood of them teaching effectively and keeping learners involved and active. However, staff need to commit time and energy if any staff development initiative is to achieve the desired results. The challenge for the college is to get teachers released from their conventional duties to attend training interventions. Although teachers are willing to attend, school principals are not eager to release teachers for NAMCOL's activities. Because of this challenge, the college's training interventions are scheduled mostly over weekends. That is also problematic, since teachers need to attend to personal matters on weekends. This hampers the provision of ongoing professional development to part-time staff.

Training of full-time staff is high on the agenda of the annual training calendar. Over the years, the college has been losing its qualified and skilled workforce to the institutions of higher learning, especially in the area of materials development. The exit of key staff decelerates activities, resulting in the college having to incur additional cost to hire and train the new recruits.

Quality control

The pursuit of quality has been assigned a high profile at NAMCOL. Quality assurance is a complex process because it is not a fixed set of criteria, but rather a process built on reflection, organisational realities, and evaluation. The quality of NAMCOL programmes and services has always been a key consideration. Hence, NAMCOL's quality assurance system is integrated with the institution's strategic management process. Quality is therefore one of the strategic aims of the college. The assurance of quality and standards in systems design, programme design and development, and learner support and assessment are of primary importance for any distance education institution – and nowhere more so than at NAMCOL. The NAMCOL culture is such that all staff believe that quality assurance measures will give the learner a fair and reasonable opportunity to achieve the required academic standards.

The government's objective with the establishment of NAMCOL was to improve internal efficiency and to transform the institution into a customer-friendly, service-oriented institution. The college deemed it appropriate to develop a policy framework on quality assurance in 2004. To nurture a culture of quality at the college and enhance staff involvement in the quality assurance process, wider staff consultation was done during the initial stage of policy development. In addition, quality assurance teams have been established in various divisions to spearhead the quality assurance agenda at the college. To ensure success in the implementation of the quality assurance agenda, a senior member of the Management Team co-ordinates its implementation. The performance management system, which requires staff to formulate standards of achievements based on key performance areas, is another tool that ensures that quality is maintained at levels.

The policy framework subscribes to the notion of quality as:

- "fitness for purpose" – that is, the college needs to provide quality educational service to its learners by fulfilling their needs, expectations and requirements; and

- "value for money" – that is, as pertains to all state-funded educational institutions, it is imperative for the government and general public to see that investment in the college is money well spent.

One key quality assurance initiative identified was the process of external quality assurance audits. To this end, a Memorandum of Understanding was formalised with the Botswana College of Distance and Open Learning (BOCODOL) in 2005. Through this arrangement, the two institutions made commitments to quality assurance enhancement. The external quality assurance audits are conducted by members of the Quality Assurance Teams of both institutions on the basis of the common criteria jointly developed. To date, two external audits have been conducted at both institutions. Jointly developed common quality assurance criteria will inform future quality assurance audits. The principal advantage of this arrangement is that the two institutions are learning from one another's experiences and taking professional advice for their own system improvement.

Procedures for all levels of activities (materials development, learner support and regional operations) have also been developed.

Challenges

The key challenge with quality control relates to maximising the involvement of NAMCOL staff in the quality assurance process. There is thus a need to bring staff members on board and ensure that they keep abreast with developments in the quality assurance agenda. Staff need to buy into the notion of quality assurance. However, some staff members view their involvement in quality assurance as additional to their key performance areas and therefore do not promptly execute the actions emanating from the quality assurance audits.

The inconsistency in the formulation of performance objectives and the conducting of the actual appraisal is another challenge confronting the college. Some staff members conduct the appraisals with absolute honesty and without personal prejudice, while others view the performance management system as an additional responsibility and therefore do not apply it consistently or objectively. Some staff members are consequently disadvantaged in the process.

Cost, efficiency, sustainability and scalability

By comparing the unit costs in conventional secondary schools with the unit cost of NAMCOL's secondary education programme (based on the 2007/08 budget), Rumble and Koul (2007) showed an efficiency rating, per subject enrolment, of 0.994 and 0.356 for Junior Secondary Certificate and Namibia Senior Secondary Certificate, respectively. This means that NAMCOL's unit costs for delivering a grade 10 subject (Junior Secondary Certificate) were lower than (but very close to) those in the conventional system, but that unit costs for delivering a grade 11 and 12 (combined) subject were barely more than one-third of those in the traditional system.

The efficiency ratios are more favourable for the Namibia Senior Secondary Certificate primarily because NAMCOL learners do the two-year senior secondary curriculum of schooling (grade 11 and 12) in a single year. Mensah (2005, p. 30) also concluded that NAMCOL was more cost-efficient than the conventional system.

These efficiency ratios show that the unit subject cost at NAMCOL is much lower than the unit cost in the conventional system. This, however, has more to do with the curriculum design than with the ODL delivery mode, though the latter is still less expensive than conventional secondary schooling.

These studies therefore confirm the fundamental principle that the provision of secondary education via NAMCOL should not be more expensive than in the conventional school

system. In his report on the cost and funding for NAMCOL, Rumble (2006, pp. 18–28) highlighted the following operating sub-systems that affect cost at NAMCOL: materials, learner, logistical and regulatory sub-systems. Since the college's establishment in 1998, much has been done in terms of fulfilling the mandate, as articulated in the NAMCOL Act. Over the years, learner numbers have increased, course delivery has been enhanced through multimedia technology, new courses have been developed, and existing courses have been revised. However, all of this has also resulted in a doubling of the cost of providing services to learners.

In terms of course development, once the specifications for a new course or existing one have been drawn, the next step is to cost out the course. According to Rumble (2006, p. 44), institutions tend to divorce overheads (logistical and regulatory sub-systems) from the real work of the institution in traditional systems models. Initially, the costing of programmes at NAMCOL focused only on the expenditures without including the income to show the real profit or loss for delivering a particular programme. The study further recommended that costing be done on an income and expenditure basis and that the life-time of the course and the number of learners anticipated for the course be taken into consideration during costing. NAMCOL has now adopted this approach of costing (activity-based costing) and tools have been developed for use during the costing process.

NAMCOL is exempted from paying for school facilities and other facilities vested in the ministry and made available outside of normal school hours by NAMCOL staff who deliver programmes (Ministry of Basic Education 1998). However, NAMCOL has entered into a separate agreement with schools and makes a financial contribution to offset the operating costs associated with the college's use of the schools' facilities.

Du Vivier (1998), in his consultancy report on the NAMCOL fee structure, proposed principles that should guide deliberations on future charges to learners for educational services to NAMCOL. One key principle is that fees should be set at the level that ensures long-term sustainability for the college. The current fee structure and grant have thus far only enabled the college to provide required services, which is a worrying factor for long-term sustainability for the college.

NAMCOL's history of increasing learner enrolments while remaining cost-effective demonstrates the scalability of its model. Increasing learner enrolment and ensuring that the institution is financially self-sustaining is critical. NAMCOL has experienced significant growth over the years and the college would always like to strike the balance between growth, provision of quality education and addressing of individual needs of the learners.

Challenges

Learners' inability to pay course fees represents a critical challenge facing NAMCOL. As stated above, only 1% of the college's total learners are employed or do any paid jobs. The general public views NAMCOL fees as exorbitant. This is because fees must be paid in full at the time of enrolment. Fees paid by learners in conventional schools are spread more evenly throughout the year and many parents find them easier to pay. Before 1997, NAMCOL course fees were paid in instalments and the distribution of materials and attendance at centres were linked to the payment of fees. This arrangement proved to be ineffective and was done away with.

To ensure that NAMCOL fees remain affordable, increases are linked to inflation. That also poses a challenge since, at times of high inflation, there is the risk that

increases may not keep pace with the actual cost of providing the service. Any increase in learner fees might lead to a decline in subject enrolments, as learners will opt to enrol for fewer subjects.

Because NAMCOL offers post-secondary programmes for which it is not yet receiving funding from government, the college subsidises the development of the programmes and, to a lesser extent, their delivery from its alternative secondary education funding. This negatively affects NAMCOL's ability to further expand services for secondary education learners.

The college's ultimate goal is to be highly scalable, so it is exploring and taking advantage of multimedia technology in course delivery. However, the challenge of how to do this while remaining cost-effective remains.

Over-dependence on government funding is also challenging. Should government decide to reduce the subsidy allocation because of changes in its or the Ministry of Education's financial position or other unforeseen circumstances, the college will not be able to deliver services effectively to its learners. NAMCOL started with some income-generating initiatives to increase its revenue base.

CONCLUSION: IMPLICATIONS FOR PUBLIC POLICY AND STRATEGIC PLANNING

The provision of secondary education through conventional schools will remain a challenge for governments. Many children are completing primary education because of the significant achievement in providing education at the primary level as part of the Education for All agenda and the Millennium Development Goals that ensure the participation of all children in primary schooling. Governments' limited resources will hamper secondary education provision through conventional schools. Therefore, provision through open schools will prove critical in contributing to expansion, increased access and greater capacity at the secondary level. The recommendations below, directed to key stakeholders in the education sector, are aimed at maximising the effective development and delivery of programmes through open schools.

Flexible curriculum for open schools

Namibia is confronted with large numbers of out-of-school youth and relatively high levels of unemployment. The current secondary education curriculum concentrates on the attainment of academic qualifications and offers limited opportunities for skills-based vocational training. Education should be the vehicle to ensure that all Namibians are integrated within mainstream economies to facilitate the transition of the country into a knowledge-based economy, as articulated in the national development goals, Vision 2030. This challenge demands that open schools focus on the curriculum that prepares learners to secure sustainable livelihoods. The offering of Technical and Vocational Education and Training (TVET) programmes at secondary level would make a contribution to the creation of sustainable livelihoods of many young people.

These programmes should receive funding on the same basis as the academic secondary education programmes that are funded by government.

Increase access

The strategic plan of the Ministry of Education requires the expansion of secondary education through intensifying the use of open learning programmes, such as provision through NAMCOL. Many policy-makers do not appreciate open schools' critical complementary and alternative role to the conventional school system. Hence, learners in schools are prohibited from entering some subjects as part-time candidates through open schools. This position has limited the study opportunities of many learners who could have otherwise benefited from the distance education options available to them. It is vital to formulate a policy framework to allow learners to take some subjects through open schools – notably, those subjects that cannot be offered through conventional schools because of the unavailability of teachers or low enrolments.

A policy on the Recognition of Prior Learning is also critical for open schools. Such a policy would enable those who never had the opportunity to attend traditional schools to pursue study opportunities.

Synergy between conventional and open schools

In view of the limited resources available in the education sector, strategies should be developed to ensure synergy between conventional and open schools. Competition should be avoided at all costs for the limited human, financial and material resources. Programmes should be developed to enable learners to transfer flexibly between the two streams, and delivery models such as the use of conventional school facilities for open schools programmes after normal school hours should be designed. Arrangements for sharing facilities should be formalised through agreements between open and traditional schools.

Use of ODL self-instructional materials in conventional schools

Learners in conventional schools do not find traditional textbooks easy to comprehend. In addition, textbooks are not easily accessible from suppliers, and learners spend most of the year without the required prescribed materials. The self-instructional materials developed by open schools through the support of teachers from the conventional schools should be made accessible to learners in schools. Rumble and Koul (2007, p. 259) rightly stated that the provision of ODL materials will reduce the cost to governments and allow education funds to be directed elsewhere. In this way, the revenue base for open schools will increase, and can be directed toward improvement of service delivery.

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CHAPTER 7

NATIONAL INSTITUTE OF OPEN SCHOOLING, INDIA: A CASE STUDY

Mahesh Chandra Pant

ABSTRACT

The National Institute of Open Schooling (NIOS), set up as an autonomous body by the Government of India, Ministry of Human Resource Development in 1989, has emerged as an apex open and distance learning (ODL) organisation with authority to enrol, examine and certify students up to pre-degree level. The open schooling (OS) programmes of NIOS are meant for all, with special focus on school dropouts and students from disadvantaged sections of society. At a secondary stage, NIOS provides flexibility in choice of subjects, place and pace of learning, accumulation of credits, and transfer of credits from other Boards. The programme delivery is through 3,260 study centres in India. About 1.5 million students are enrolled at secondary and senior secondary level, making it the largest open schooling (OS) organisation in the world. Besides conducting two public examinations in each academic year, NIOS has also started offering on-demand examination based on information and communication technology (ICT).

With resource support from NIOS, 13 states have set up the State Open Schools (SOSs) and the remaining 16 states are being encouraged to establish them also. A National Consortium for Open Schooling, with its secretariat located in NIOS, has been discharging co-ordination and clearing-house functions.

Multiple uses of ICT and certain other measures in operational aspects of NIOS programmes have contributed to their cost effectiveness, efficiency, sustainability and scalability. In order to put the OS programme on a sound pedestal, NIOS strives to ensure quality in curriculum, materials and methods, intertwining general education, Vocational Education and Training (VET), and strengthening/upscaling VET. For motivating the clientele of OS, the prospective learners and their parents are apprised of the inherent flexibilities and usefulness of OS programmes through publicity and counselling.

Given that universalisation of secondary education within a reasonable period of time is the cherished goal before the nation, the Planning Commission has envisaged that "during the Eleventh Plan (2007–2012), the thrust of the Open Schooling system will be on (i) developing NIOS as a potential Resource Organisation in Open Schooling at national and international level, besides offering courses of study, (ii) upscaling programmes of the existing 13 SOSs, and (iii) setting up SOSs in the remaining 16 states."

BACKGROUND

Institutional profile

The National Institute of Open Schooling (NIOS) in India is an open school that caters to the needs of a heterogeneous group of learners up to pre-degree level. It was started as a project in 1979, with in-built flexibilities by the Central Board of Secondary Education (CBSE). In 1986, the National Policy on Education suggested strengthening of the open schooling (OS) system for extending open learning facilities at secondary school level all over the country in a phased-in manner. In pursuance of this policy, the Government of India, Ministry of Human Resource Development (MHRD), set up the National Open School (NOS) as an autonomous organisation effective November 23, 1989.

Through a Resolution published in the Gazette of India on October 20, 1990, NOS was vested with the authority to register, examine and certify students up to pre-degree level courses.[1] In July 2002, the MHRD amended the nomenclature of the National Open School (NOS) as the National Institute of Open Schooling (NIOS).

National context

After the success of the Universalisation of Elementary Education campaign, the Government of India has launched the "Rashtriya Madhyamik Shiksha Abhiyan" (Universalisation of Secondary Education campaign). Despite making substantial enhanced provision of funds for secondary education in the XI Plan (2007–2008 to 2011–2012), it will be very difficult for the conventional schooling system to cope with the influx of elementary education completers seeking admission into secondary education. In the context of the Universalisation of Secondary Education, the Central Advisory Board of Education (CABE) has therefore suggested that 15% of the student population at the secondary stage be taken care of by the OS system.

The OS system in India is in the process of evolution. It is being operationalised at the national level by the NIOS. Out of 29 states, 13 have set up a State Open School (SOS). Of these, three SOSs were established during 2008. The annual enrolment in SOS varies, but the total enrolment per year in the 10 pre-2008 SOSs is approximately 400,000. The remaining states are taking steps to set up SOSs. NIOS, as the apex OS organisation, has used advocacy, consultancy, and resource support in persuading the states to establish or upscale SOSs. A National Consortium for Open Schooling (NCOS) has also been created to provide a forum for open schools to deliberate on matters and issues of common interest and to discharge co-ordination and clearing house functions.

Some of the SOSs use the study material prepared by NIOS, while others follow the curriculum of the state. Several of those that use NIOS study materials are conducting their own examinations through their respective Boards of School Education.

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1. The term "course" at NIOS is synonymous with the term "programme" in other parts of the world.

Legal and regulatory framework

The legal and regulatory framework of NIOS is provided for by the Memorandum of Association and Rules and Regulations of National Open School Society, as required under the Societies Registration Act of 1860. Among other things, the memorandum mentions the precise "aims and objects" and "rules and regulations" of the National Open School Society. The programmes and activities of NIOS are governed mainly by the provisions of this document. The general guidelines of the Government of India are followed in matters relating to service rules and so on.

Governance

The policy perspective for NIOS is provided by the General Body of the National Open School Society, a constituent body presided over by the Minister of Human Resource Development and composed of senior representatives from government and other appropriate bodies. The execution and monitoring of programmes are overseen by the Executive Board. Figure 7.1 shows NIOS's organisational structure.
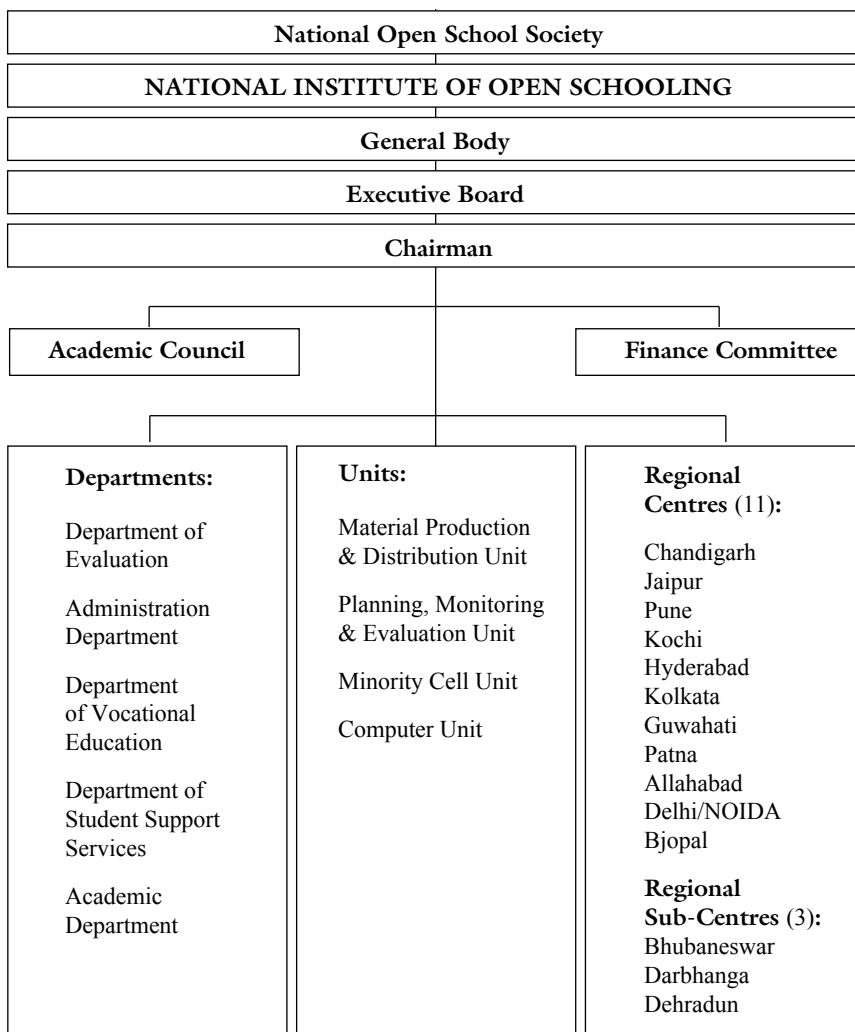

Figure 7.1: Organisational structure of NIOS.

The General Body is vested by the Memorandum of Association of NOS Society with the responsibility for assisting the society by providing sound and professional advice and counsel. It generates a vision and gives broad policy directions. The Executive Board has been vested with powers to manage the affairs of the society, enabling it to function smoothly and effectively. It plans for the preparation of policies and programmes of action, takes appropriate decisions to ensure effective implementation of the programmes, and exercises a review function.

Organisation model and culture

NIOS operates through a network of five departments, 11 regional centres and about 3,260 accredited institutions (academic and vocational). A further 26 study centres are in other countries (United Arab Emirates and Nepal). About 1.5 million students have enrolled at secondary and senior secondary level (364,016 in 2007/2008), making it the largest OS organisation in the world.

As NIOS's chief executive, the Chairman provides leadership in generating ideas, creating and implementing policies and programmes and ensuring that aims, objectives and the mission of the organisation are attained. Assisting the Chairman are the Heads of departments, units and regional centres.

At the initial stage it was envisaged that NIOS should maintain three identifying institutional characteristics, namely a:

- *linked* institution – NIOS sought partnership with existing institutions, wherever and whenever possible, instead of setting up institutions of its own. NIOS works with a large number of partners, carefully selected for their commitment to common aims and purposes.

- *supportive* institution – NIOS pays an honorarium, as per norms, to those actually doing the work such as tutoring or administering.

- *facilitative* institution – NIOS has a core complement of academic, research and sevaluation staff and administrative support staff. They look after many different activities. For academic and specialised work, contractual staff are used as required.

As of October 1, 2008, the regular staff strength of NIOS was 251, categorised as follows:

Category of Post	Staff Strength
Group A, comprising senior academic, professional and administrative staff	49
Group B, comprising middle-level academics, technicians and administrative staff	74
Group C, comprising support staff	109
Group D, comprising peons,[2] etc.	19
	Total: 251

2. The lowest staffing classification.

NIOS staff has been looking after the programmes and activities of five departments and four units of Headquarters, 11 regional centres and three sub-centres of the regional centres.

It is now felt that the human resource allocation needs be augmented given the significant increase of programmes and activities related to admission, courses of study, OS programme delivery, teaching-learning strategies, examination and certification, accreditation of study centres, training of OS functionaries, and in-country and inter-country collaboration with OS programmes/functionaries.

Challenges

The challenges of Universalisation of Secondary Education (USE) and the upscaling of vocational education are to be met primarily by the conventional schooling system. However, the XI Plan (2007–2012) in this regard has envisaged the upscaling of OS programmes at both national and state levels. Yet, for this to occur, increasing staffing levels must become a high priority.

Funding model

Funds are generated mainly by way of the collection of admission and examination fees. As a welfare measure, NIOS gives concession in admission fees to students from less advantaged sections of society. Budgetary support (including some grants for capital works) is also received from the Government of India, Ministry of Human Resource Development.

In the early years of its establishment, NIOS depended largely on grants from the government. With steady increases in enrollment since 1990, NIOS has become self-sufficient to a large extent. It is now receiving grants from the government to the tune of 8–15% of its total expenditure per year.

Sources of revenue include:

- admission and examination fee;
- sale of publications;
- grants for some projects from various agencies, such as the Commonwealth of Learning (COL), UNESCO and United Nations Population Fund (UNFPA);
- miscellaneous income, including interest on savings; and
- grants from the Government of India.

About 70% of NIOS funds are spent on activities such as student support services, purchase of paper, printing of study material (which is supplied to the students free of cost) and the conduct of examinations.

Challenges

- The OS system, which is still in its infancy, must be placed on much sounder footing. Unlike the conventional system where government schools are wholly funded by the concerned government, the OS system is expected to generate on its own the vast majority of its required funding. There is an urgent need for large-scale government funding of the OS system in the country.
- NIOS charges students a modest one-time admission/registration fee. There is a provision for a substantial fee concession to economically and socially less

advantaged students, but, unlike the case in conventional government schools, government does not subsidise this fee remission. A large percentage of NIOS funds is spent on these subsidies.

- To be given the benefit of OS, the less advantaged sections of society should be charged a nominal fee or provision made to offer the open and distance learning (ODL) programmes for free. This can only be done if government makes up for the loss in revenue.

- Reducing costs through the use of enriched ICT applications in most major operational areas constitutes a very significant challenge.

Student success rate

After admission, a student is allowed to accumulate credits for up to five years. Thus, a student can complete a programme of studies within a time span of one to five years. Insofar as examination and certification are concerned, NIOS operates at the level of subjects rather than full programme as is done in the conventional schooling system. Performance at the subject level is thus used by NIOS in establishing its overall pass percentages of around 58% at the secondary level and around 60% at the senior secondary level. Pass rates take into account all students who were admitted into either of the two programmes and therefore reports as failures those who did not complete their programme in the permissible five years. These student success rates are comparable to the pass percentages of other Boards of School Examinations in India.

KEY FEATURES OF NIOS

Target audience and curriculum

Target audience

The conventional schooling system enrols students of fixed age groups, with fixed prerequisites, and for a fixed time. The OS system allows for flexibility of age range, admission prerequisite, and flexibility of place and pace of learning. However, socio-economic, geographical and gender factors – as well as learner disabilities and the fixed hours and place of instruction of the conventional system – exclude those who cannot conform to its requirements.

Thus, all these groups who cannot benefit from the conventional system together define the clientele for OS in general. That said, OS is for all learners in society, regardless of any distinction. In fact, OS offers the promise of becoming the mainstream learning system, like present-day conventional schools, at some point of time in future.

Enrolment in NIOS's secondary stage (secondary and senior secondary, excluding vocational education training) has increased steadily (Figures 7.2 and 7.3). Starting with an enrolment of 40,000 students during 1990–1991, it reached well over 350,000 in 2007–2008. The age range of existing learners of secondary level courses in NIOS is from 14 to 80, though the majority of the students are in the age range of 14 to 25 years

NIOS programmes are formulated within the broader perspectives of the National Policy on Education, the vision document, and the educational needs of the clientele residing in various states. The programmes are planned and processed through the
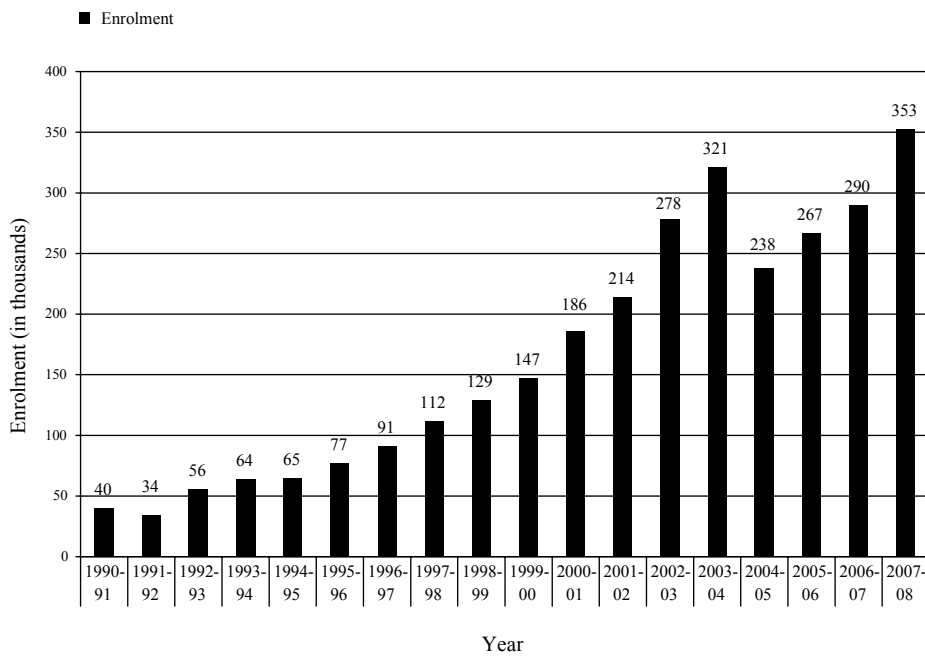
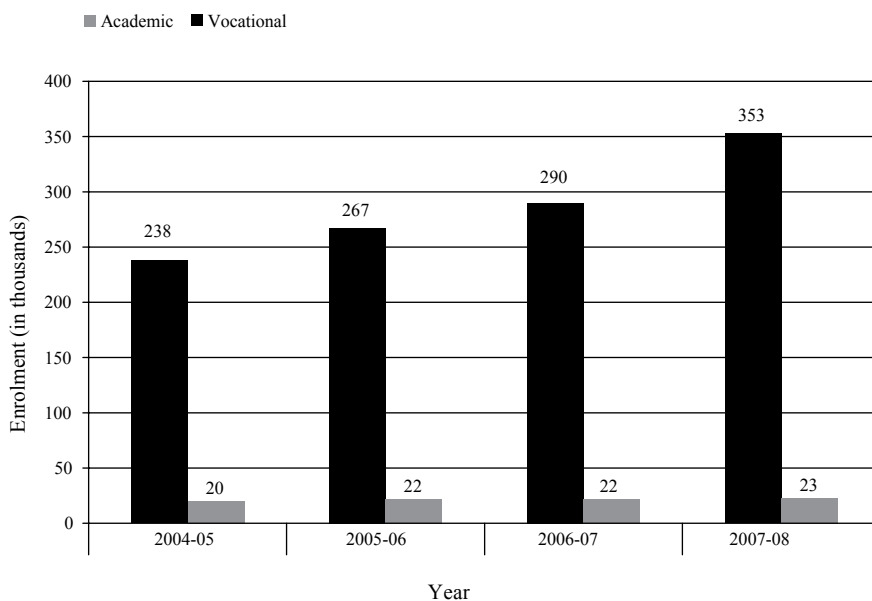*Figure 7.2: Enrolment trend in academic courses since 1990/1991.*

Figure 7.3: Enrolment profile in academic and vocational education,
2004/2005−2007/2008.

Advisory Committees of the departments and thereafter considered and approved by the Academic Council.

NIOS offers secondary, senior secondary and vocational education courses. The secondary course is a composite course equivalent to grades IX and X of the conventional school system. The senior secondary course is a composite course equivalent to grades XI and XII of the conventional school system.

NIOS offers 26 subjects at the secondary level, of which 17 are languages. At the senior secondary level, 19 subjects are offered, of which three are languages. A student is required to pass a minimum of five subjects, including up to a maximum of two languages. Students have the option of taking up to two additional subjects.

NIOS is now endeavouring to offer life-enrichment courses, such as Music, Painting, Art, and Yoga. These are conducive to the collective development of hand, heart and head.

As well, NIOS offers vocational education courses in keeping with the needs of different target groups. At present, 86 vocational courses are on offer in the broad areas of Agriculture, Engineering and Technology, Health and Paramedical, Home Science and Hospitality Management, Computer and IT-related areas, and Business and Commerce. Knowledge, skills and qualities of entrepreneurship have been made essential components in the curriculum for vocational education with emphasis on practical and on-the-job training in related industrial units. To upscale and strengthen the vocational education programme, NIOS is seeking collaboration with leading oganisations in different sectors, such as industries, medicine and IT.

When seeking admission in a secondary or senior secondary programme, a candidate may also opt for one vocational subject. There are 10 vocational subjects at the secondary level and 20 vocational subjects at the senior secondary level that are offered in combination with academic subjects. The pass credit obtained in one chosen vocational subject can be transferred on request to the programme of the candidate in the secondary/ senior secondary examination.

Innovations in curriculum

Since acquisition of life skills is an integral part of student development, general education and vocational education and training need to be intertwined effectively. Education in the 21st century must place emphasis both on cognitive and non-cognitive outcomes such as personal initiative or entrepreneurship, life skills and social competence and values. It is desirable that work be given an important place in the educational system through the secondary stage of education, and that the streaming of academic and vocational channels be implemented at the senior secondary stage. Generic vocational education components, however, may be suitably woven into academic courses.

Challenges

The domain of vocational education subjects should be extended from the conventional trades to a wide variety of courses that have bearing on the emerging knowledge economy and that can respond to the socio-economic contexts of students.

Of particular relevance to OS, is the provision of education around the vocational rehabilitation of persons with disabilities, an area that NIOS is considering as a priority for development.

Degree of openness

Key areas of flexibility for NIOS learners include:

- the absence of an upper age limit (although the minimum age for enrolment is 14 years in a secondary education course and 15 years in a senior secondary education course);
- new admissions that remain open during July and August for academic courses and year-round for vocational education courses;
- freedom to choose subjects according to one's needs, interest and abilities (with the exception of one language, no other subject is compulsory);
- credit accumulation facility over a period of five years;
- transfer of credits (from some Boards of School Education);
- flexibility in examination sitting (the first examination in a secondary course after admission in July–August is held in April-May the following year; after that there is provision for two public examinations in each academic year (in October–November and April–May), plus provision for on-demand examination, which a student can request after completing the first year); and
- self-pacing.

Challenges

Managing the many flexibilities of the NIOS model requires the development and implementation of complex yet efficient management information systems.

Curriculum development and production model

Study material components for a subject include the following: study guide, curriculum, learning outcomes, printed self-learning material, assignments and sample question papers, marking scheme, and audio-visual support.

The process of course development includes: (i) needs analysis; (ii) development of a general approach paper; (iii) study of curriculum of other Boards of School Education; (iv) development of a subject-specific approach paper; (v) formation of subject committees; (vi) development of curriculum and learning outcomes; (vii) formation of subject teams; (viii) development of learning material, support material, and audio-visual aids; and (ix) production of material.

The study materials for a subject are designed keeping in mind the personal, social and academic factors of the client group, as well as the learning conditions of the group. A format supporting independent learning is followed.

A comprehensive "Style Guide" helps in standardising the house style of learning materials produced and serves as a ready reference for lesson-writers, editors, translators, composers and course co-ordinators. The document includes: guidelines for finalising the layout of self-learning material and the lesson format; guidelines for copy editing; information on copyright procedure; and a writer's checklist.

Self-learning materials are developed using a team approach where different experts come together to develop quality learning material. Other methods such as writing by individual authors and writing by in-house faculty are also followed.

Challenges

Only one set of self-learning materials is prepared for each subject or course, whereas the varied socio-economic, geographic and cultural environments of learners would make it desirable to prepare multiple sets of self-learning materials to meet their specific educational needs. To do so, however, would be a mammoth task, requiring levels of financial and academic inputs that NIOS is unable to provide.

For vocational education subjects, the evaluation system should map precisely the skills acquired by learners in particular vocations. For the integration of vocational qualifications in different sectors, the formulation of a National Vocational Qualification Framework (NVQF), currently under consideration, would be a significant asset.

The final major challenge concerning the development of course materials involves quality assurance. With a view to establishing the credibility of the OS system, quality assurance in curriculum, study materials and study methods is extremely important. There is a need to prepare conceptual literature on principles and procedures for the preparation and evaluation of self-learning materials. To build capacity of ODL functionaries, recurrent training programmes based on well-designed training package are also needed.

Course delivery model

The main characteristic of NIOS' open learning system is to learn from self-instructional material at one's own pace and convenience. While learning, however, students confront certain problems for which help and guidance are needed. To assist in this, NIOS conducts Personal Contact Programmes of 30 periods/hours for non-science subjects and of 35 periods/hours for science subjects at the study centres during Saturdays, Sundays, other holidays or some convenient time during weekdays. These are diagnostic and remedial sessions conducted by the teachers of the study centres and other identified teachers as needed. Students must attend at least half of the sessions. For vocational education courses, more essential contact classes have been prescribed because of the nature and duration of courses. For example, in the Diploma Course in Radiography, the number of essential contact hours for the theory and the practical components is 600 in each.

To augment student support services, NIOS has identified and appointed experienced educationists as Academic Facilitators. They oversee and guide the conduct of Personal Contact Programmes, look into the supply of study materials to the students, and monitor the operation of tutor-marked assignments and their evaluation.

Challenges

At the beginning of each academic session, NIOS conducts orientation programmes for the Co-ordinators and the Academic Facilitators of the study centres. We have learned from interaction with field level functionaries that more individualised attention needs to be provided to the learners during admission and Personal Contact Programmes. A significant step taken by NIOS to respond to academic help and miscellaneous queries is the setting up of "24/7" call centre at Headquarters. Such call centres also need to be set up at the regional centres and the NIOS study centres.

Learner assessment

During the session, tutor-marked assignments help learners judge their performance at three points for each subject, thus giving them the opportunity to improve. This serves as a tool for continuous evaluation, though students are obliged to submit only one assignment per subject.

Summative evaluation is undertaken to judge the level of understanding and performance of learners at the end of the session on the whole subject. These public examinations for secondary and senior secondary stages are, by and large, conducted on the pattern of the conventional schooling system. However, whereas conventional schooling conducts only one public examination per year, NIOS conducts two public examinations a year (April/May and October/November). The examinations are conducted in about 1,800 examination centres throughout the country. When a student chooses to sit the examination is flexible.

A student is given nine chances in five years to clear the secondary or senior secondary examination – that is, to pass the required number of subjects. An ICT-based On-Demand Examination System (ODES) has also been operationalised at the secondary and senior secondary levels and is experiencing tremendous uptake.

Challenges

The system of summative assessment through NIOS is complex in comparison to conventional school examination systems. The flexibilities inherent in the OS system require a high degree of accuracy, efficiency and promptness in various operations related to examination and certification, particularly to ensure quality and credibility. For example, the maintenance of data for multiple examinations necessitates focused attention on the removal of manual errors.

Since more than 400,000 students take NIOS public examinations every year, a high degree of accuracy and secrecy is required during examinations and the evaluation of answer scripts. A precise marking scheme must be provided to the evaluators to ensure transparency and objectivity in assessing responses to long- and short-answer questions. Recurrent orientation programmes are required for saper setters, moderators and evaluators.

The monitoring of examinations in the examination centres is a challenging task, especially when NIOS does not have its own supervisory staff in the field. To monitor and supervise NIOS programmes, about 350 Academic Facilitators have been commissioned on an assignment basis. It is very difficult to monitor examinations in the nearly 1,800 examination centres with the help of ad hoc personnel. Therefore, to monitor and supervise public examinations, NIOS seeks assistance from state level and district level agencies. The services of public-sector banks are used to ensure the safe custody of question papers and their timely supply to the Superintendents of examination centres. District Magistrates are requested to take care of law and order at the examination centres. State Boards of School Education are requested to extend help in the monitoring and supervision of examination centres.

Lastly, the success of the ODES depends on a comprehensive question bank in which questions are valid and reliable. With any change to the curriculum framework and syllabi, the question bank must be prepared afresh. The tasks related to preparation of the question bank for the ODES and operationalising of the ODES are arduous. For example, for monitoring examinations under the ODES, closed-circuit televisions need to be installed in examination halls in every examination centre.

Student support services

To sustain the interest of students in studies, NIOS has planned and operationalised several measures. Among other things, the framework for student support services includes: (i) establishment of study centres; (ii) admission/registration; (iii) counselling; (iv) timely supply of learning materials; (v) monitoring of Personal Contact Programmes; and (vi) the implementation and monitoring of tutor-marked assignments.

Admission in secondary, senior secondary, and vocational education courses is done through accredited institutions (study centres). Some basic minimum requirements (e.g., at infrastructure facilities) have been prescribed for selection of study centres. NIOS has also developed standard operating procedures for the study centres.

Study centres, the number of which has increased from 161 in 1990/1991 to 3,268 in 2007/2008, constitute the primary vehicle for providing services to students. Their role includes:

- issuing a prospectus;
- accepting admission forms;
- issuing students an identity card and enrolment number;
- supplying study material;
- establishing Personal Contact Programme;
- having tutor-marked assignments corrected;
- counselling to solve problems/queries of students;
- informing students about fee payment dates, examination dates and examination location;
- displaying results of public examinations;
- distributing mark sheets and certificates prepared by NIOS for successful students; and
- providing miscellaneous student support services.

In OS environments, involving a student's parents in supporting their child's studies is an important element of student support services. NIOS also believes that the parents of open school learners must be apprised of quality inputs, parity of esteem, and the learner friendliness of the OS programme. It is extremely difficult to organise face-to-face interactive programmes with parents in a vast country like India, but the following steps have been taken to make the parents of learners aware of the programmes and activities of NIOS.

- A Single Window Information System on the NIOS Web site gives complete information about each learner, as well as information about the courses of study, admission and examinations. It includes admission details, tutor-marked assignments, course material, syllabus, sample question papers, previous years' question papers, and performance of students in examinations.
- Online counselling in the form of dedicated online help, answers to queries and other support are provided to learners and parents through e-mail. On average, 50–60 e-mails are received a day from learners or parents regarding information about NIOS programmes and correction of student data.
- All application forms pertaining to admission and examination have been placed on the Internet for use by learners and parents.

- All course materials are available on the Internet for the information of, and use by, students, parents and educationists.

- Two documentary films, *School for the Masses* and *Sun Rose at Every Doorstep* depict distinguishing features of NIOS. These films are meant to make public and learners aware of NIOS programmes. Other media programmes about NIOS are under production.

Challenges

In providing student support services, NIOS must regularly respond to several challenges:

- Keeping in view its clientele, NIOS is required to provide sound guidance and counselling, particularly to first-generation learners and potential dropouts. The Co-ordinator of the study centre and the Academic Facilitator at the study centre are not in a position to provide individualised help, because new admissions at each centre are in the range of 150 to 500. Some guidance tips are given in the prospectus about choice of subjects, medium, combination of academic and vocational courses, continuous assessments, online admission, and so on.

- In the case of online admission, providing individualised guidance and counselling is extremely difficult at present. NIOS has recently set up a multi-informational "24/7" call centre at Headquarters to respond to queries by learners and others.

- Students must be motivated to take full advantage of the provision of Personal Contact Programmes. Observing that Personal Contact Programme facilities are not optimally utilised by students, NIOS has made it compulsory for each student to use at least 15 of these sessions (out of the 30 available).

- Efforts must be made to ensure that students take full advantage of the Media Support Programmes prepared by NIOS. All study centres have received CDs of the Media Support Programmes for use by students during Personal Contact Programmes. Media Support Programmes are also broadcast and telecast.

- NIOS is working to ensure that schedules for confirming student admission and dispatching study material in time are adhered to.

Use of ICTs

NIOS is making use of ICT both in the context of its student support service programme and elsewhere. The former use include: (i) students' database management; (ii) admission/registration; (iii) photo scanning on attendance rolls and printing of photos on certificates; and (iv) results-processing and certification. Since 2007/2008, NIOS has introduced the facility of online admission. Provision has also been made for online admission of learners who intend to sit examinations under the On-Demand Examination System (ODES) – a pioneering step taken by NIOS. No other school education Board in India has so far introduced such innovation into its examination system.

NIOS has used ICT in other significant ways, including to:

- set up training programmes in ICT for officers and staff;

- create an institutional Web site focusing on information provision, services and interactivity;

- develop online course materials – NIOS has developed 12 lessons in interactive mode in Chemistry for the senior secondary stage; these have been uploaded on the educational portal "Sakshat" of the Government of India;

- give students access to the results of public examinations by mobile phone;
- produce CD versions of several significant topics of its course materials in interactive mode for students – These are made available during the Personal Contact Programmes and as priced material;
- develop audio and video programmes that are regularly broadcast over national channels for the benefit of learners; and
- create a multi-mode response centre, using a range of modes of communication, to respond to queries of learners about education, health and social concerns.

Challenges

The ICT-based On-Demand Examination System (ODES) is a significant venture of NIOS. Realising that credibility of examinations is of paramount importance, NIOS is finding it extremely difficult to expand it spatially so that each enrolled student may have easy access to it. At present, ODES is available at three regional centres only. It is being extended soon to all regional centres. Even then, the spatial coverage of ODES will not be adequate in this large country.

NIOS is in the process of adding more to the educational portal "Sakshat". The Internet facility of study centres must be provided or upscaled so that students may make optimum use of ICT inputs. Besides audio and video programmes, some interactive media programmes in various vocational areas are also being developed.

Staff training and development

Based on the assessment of training needs of OS functionaries across the country, NIOS has developed the following six modules of the training package:

Module 1	Historical and Philosophical Bases of NIOS Operations
Module 2	Accredited Instituuptions and Student Support Services
Module 3	Instructional Strategies for Open Schooling
Module 4	Operational Strategies for Co-ordinators and Academic Facilitators
Module 5	Life Skills for Open School Learners
Module 6	Training of Trainers

NIOS has envisaged training of functionaries at the national level as well as at the international level. Based on the training package, training programmes for the staff of the study centres have been planned in a phased-in manner. Training programmes for 120 Co-ordinators of the study centres have already been organised. As a result of experience gained from these training programmes, several frequently asked questions document (FAQs) have been prepared for the Internet. Training programmes for the trainers were organised in May 2008. Their services will be used to train the Co-ordinators of the study centres, Academic Facilitators and tutors attached to the study centres.

An International Centre for Training in Open Schooling (ICTOS) has been set up. In collaboration with COL and UNESCO, NIOS has organised several advocacy and consultancy programmes related to OS for African and Asian countries. It has also

organised several international conferences for discussion of various issues pertaining to the promotion of OS.

Challenges

The study centres deploy part-time tutors for Personal Contact Programmes. The attrition rate of tutors is substantial, placing high demands on the training of their replacements.

Given their crucial importance, the effectiveness of training programmes must also be assessed periodically, and the programmes themselves should be revised based on these evaluations.

Quality control

Study centres will remain the most important sites for the teaching, training, guidance and assessment of students for many years to come. Improving the number and the quality of equipment and personnel in these centres constitutes the main challenge to quality assurance, yet there is no fixed formula that can be prescribed. The task has to be imaginatively approached because on this hinges, more than on any other aspect, the quality of the whole programme. The study centres may be equipped with various IT facilities through the provision of financial and technical inputs.

Moreover, these accredited centres also have the responsibility of identifying part-time tutors, training places and industries, and making working arrangements with them. Identified educationists and Academic Facilitators are contracted to monitor and supervise key functions of the study centres (including teaching and learning during Personal Contact Programmes) and to visit each centre seven times during each academic session. With their help, NIOS ensures that they all function properly and that learners do not suffer on account of systemic faults. Just as important is the frequent inspection and supervision by the Open School personnel.

The quality of examinations is also closely monitored. In the post-examination analysis of each question paper, staff check whether the paper has been prepared according to the criteria laid down in the question paper design and blueprint. Each question item is analysed in terms of its objective, framing, clarity of language, content area, expected answers, average time required to answer the question. A team of experts does the analysis to avoid any bias or unfairness. This exercise is done to ensure quality of the question paper and reliability of the work of the paper setter and the moderator.

While doing learners' performance analysis, the question-wise response of each learner of the selected sample size is recorded. A thorough analysis of the response of each learner reveals variation in understanding the question and writing its answer. It provides the opportunity to check the suitability of the treatment of concepts in the study material. Accuracy and consistency of the evaluator in awarding marks is also judged.

Cost, efficiency, sustainability and scalability

Cost and efficiency of open schooling versus conventional schooling

In 2007, COL sponsored a study entitled "Open Schooling for Secondary and Higher Secondary Education: Costs and Effectiveness in India and Namibia" (Rumble and Koul 2007). The study revealed that between 2002 and 2006, costs per student at NIOS were,

on average, 12.43 times lower than those of the two conventional secondary school systems to which they were compared (p. 128).

The study also confirmed and emphasised the significant cost advantage of India's national open school that previous comparative costs analysis studies covering the years 1982–1986, 1990–1996 and 2005–2006 had demonstrated, and that are cited in the aforementioned study (pp. 105–112).

Just as important, however, is the researchers' finding that NIOS becomes still less expensive in comparison to the conventional secondary system with the passage of time. This occurs for two reasons: on the one hand, greater economies of scale are achieved; on the other hand, because its costing structure is so very different, the impact of cost of living and inflationary wage adjustments is far lower at NIOS than in the conventional schooling system.

Optimisation of resources

The following factors are key contributors to NIOS's optimisation of resources and the ensuing cost-effectiveness of its model:

- As NIOS uses the existing resources of formal schools, it incurs no expenditure in setting up its own infrastructure at field level for establishing the study centre.
- NIOS does not recruit its own permanent staff for conducting Personal Contact Programmes and for achieving other academic support at the study centres. Generally, the teaching staff of each school running the NIOS study centre is hired on a payment-for-services basis.
- Several activities – such as computerisation of admission and examination data, sanitary and security services – are outsourced.
- One-time initial expenditure is incurred on course development. The learning material is reprinted on an annual basis for five to six years with minimal maintenance cost.

Scalability

Subject enrolment has been increasing steadily at an average rate of 10% per year. During 2007/2008, the new enrolment at the secondary and senior secondary levels was about 350,000. NIOS has the potential to upscale substantially its enrolment by publicising its services more widely. However, as an apex organisation, it has taken a significant decision to work mainly as a resource organisation for the promotion of OS within India through State Open Schools (SOSs) and at the international level through advocacy and consultancy programmes. Support to SOSs is provided in areas such as: (i) advocacy and consultancy for setting up SOSs; (ii) development of curriculum and self-learning materials (SLM); (iii) supply of printed SLM; (iv) training of ODL support and administrative staff; and (v) examination and certification.

This philosophy of scalability and expansion through SOSs meets the needs and desires of prospective open school clients who would generally prefer to opt for regional rather than national OS providers. SOSs are in a better position to prepare and supply the study material in regional mediums and organise the Personal Contact Programmes in regional languages.

NIOS itself, however, is able to continue working as an open school delivery organisation with moderate scaled increases in enrolment of about 10% per year.

Challenges

A significant agenda for NIOS is to persuade the existing 13 SOSs to expand their OS programmes substantially.

Advocacy and consultancy initiatives are also being organised to encourage and assist the remaining 16 states to set up SOSs. NIOS is giving priority to this task because Universalisation of Secondary Education (including expansion of the Vocational Education and Training programme) is a priority agenda for the government. It remains, however, a considerable challenge.

Finally, providing services in less well-populated study centres constitutes a major challenge concerning NIOS scalability. Based on the availability of the infrastructure, NIOS has sanctioned enrolment capacity (500, 300 and 150) in the study centres. A sum of INR 250 per student is provided to the study centres, but those with less capacity are finding it difficult to manage student support programmes because of the limited availability of low level funding. The matter regarding the rationalisation of allocation of funds to the study centres is currently under consideration.

CONCLUSION: IMPLICATIONS FOR PUBLIC POLICY AND STRATEGIC PLANNING

Based on the NIOS experience, the most important policy-related areas that policy-makers need to address because the differences between open and regular schooling are:

- *Quality assurance in open schooling* – Quality assurance in OS is imperative and should focus on the following vital areas:

  - curriculum;

  - print and non-print materials;

  - process of curriculum transaction; and

  - progressive use of ICT in: training of OS functionaries; monitoring of implementation of OS programme at various levels; evaluation of learners; and student support services.

  Quality outputs require significant financial inputs, and the time is long past for enhancing the credibility of the OS system through substantially increased finances for infrastructure facilities and ICT inputs. In this regard, the OS system needs to be placed on an equal footing with the conventional schooling system.

- *Inter-twining of general education and vocational education and training* – Since the acquisition of vocational and life skills is an integral part of total human development (personal, intellectual, social, economic, civic, cultural, ethical, and spiritual), general education and Vocational Education and Training (VET) need to be intertwined effectively. The wide spectrum of target groups must have clear articulation and mobility pathways for both lateral and vertical mobility from general education to VET and vice versa, and also for mobility from up the hierarchy of vocations within a particular sector.

- *Strengthening/upscaling of open vocational education and training* – Fertile territory outside the conventional school system for the success of VET has largely remained under-explored. The role of OS institutions, as well as training and skills development agencies (Vocational Training Providers), in the area of VET could make a substantial change in giving a new orientation to the content and process of VET and achieve the goals insufficiently realised so far in developing countries.

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CHAPTER 8

CASE STUDY: OPEN ACCESS COLLEGE, SOUTH AUSTRALIA, AUSTRALIA

Jeane Schocroft

ABSTRACT

Open Access College (OAC) is a government school catering to all levels for students who, for reasons of isolation, are unable to access education in a regular setting or are unable to access the breadth of curriculum at their site.

The college is now in a state of significant transition, moving from mainly print-based to mainly online resources, and moving from a financially supported model of resource development to an uncertain funding future for materials.

This comes at a time when the Department of Education and Children's Services in South Australia is reviewing the senior secondary curriculum and exploring ways to ensure that all students have access to the broadest range of learning options. South Australia has a number of small schools that, because of limited size, do not have the capacity to provide students with a broad subject choice. The department is exploring ways to expand student learning options through a more open, flexible and collaborative approach to delivering programmes across schools. The position of OAC in this re-schooling process will have implications for the sustainability and scalability of the college, particularly in the senior secondary years, which is the focus of this case study.

BACKGROUND

Institutional profile

Open Access College (OAC), a government Reception (R) to year 12 school, is the sole provider of open and distance education for the school sector in South Australia.

It provides for students, age five to adult, who are unable to attend their local school or who are unable to access specific subjects at their school.

The college was established in 1991 as an amalgamation of the South Australian Correspondence School and the School of the Air (SOTA). As expressed in the college's Statement of Purpose, OAC's aim is that of "providing all students, whether in the city or country, complete flexibility in framing their studies to plan their future career options" (Education Department of South Australia 1990).

The college has two sites: one is located in Adelaide the capital of South Australia; the other, School of the Air (SOTA), is located 300 kilometres north, in a regional centre. The Adelaide campus is divided into two schools, the R–10 school and the senior secondary school (years 11 and 12). The SOTA campus caters to enrolments R–7. Senior secondary has almost 650 full-time-equivalent enrolments consisting of 1,500 individual student and more than 7,000 subject[1] enrolments. The middle years, years 8–10, increase from 155 at the beginning of an academic year to 330 full-time-equivalent students (that is, 250–474 students) at the end of the year.

The college has approximately 80 full-time-equivalent teachers (50 in the senior years) and 20 support staff. The support staff functions include administration, finance, student services, distribution, technology and learning support.

National context

Each of the six states and the Northern Territory of Australia has a separate open and distance learning (ODL) system for school-age students, of which OAC is one.

Curriculum in Australia is state-controlled and while there are curriculum similarities between state jurisdictions, there are also significant differences, particularly around the compulsory nature of subjects and assessment requirements in the senior years. The curriculum of the Northern Territory and South Australia is determined by the South Australian Curriculum Standards and Accountability Framework (SACSA) in R–10 and by the South Australian Certificate of Education in the senior years. A reciprocal agreement exists between these two jurisdictions, in which South Australia will provide education in subjects not offered by the Northern Territory and vice versa.

The Australasian Association of Distance Education Schools, with representatives from all distance education schools in Australia and New Zealand, promotes sharing and collaboration. A recent innovation is the establishment of a Flexible Learning Exchange (FLX) to exchange and share materials and, where appropriate, materials development.

A national curriculum, initially in the areas of Mathematics, English, Science and History, will be introduced in 2011. A reduction in curriculum difference will enhance further sharing of resources and material development across Australia.

The perception by governments and schools of the value and quality of open learning is somewhat mixed. Generally, face-to-face schooling is seen as the preferred mode and there is a perception that students achieve better results in the traditional class setting, even though senior secondary results of the OAC mirror those across the state. In South Australia, there is a push to localise open education by establishing clusters of schools that deliver in a particular geographical region. While this improves the possibility of establishing face-to-face contacts between teacher and students, it is extremely demanding of teachers and does not include the same quality controls as the OAC model

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1. "Subject enrolments" and "course enrolments" are synonymous.

does. There is also an erroneous perception in schools that the OAC model is more costly than the cluster arrangement. The college hopes to establish co-operative arrangements with clusters, where the OAC participates as one of the cluster schools. This has the benefit of being part of the same cost structure and, in making the college part of the cluster, breaking down other misconceptions about student learning outcomes.

Students enrolled for psychological or medical reasons are 20% of the senior years enrolment. Parents of students enrolled for medical reasons see the OAC as one of the only ways that students can stay connected with, and complete, their secondary education. There are many examples of students with severe medical conditions achieving exemplary results that would have been impossible in the traditional model of schooling.

Legal and regulatory framework

Because of the sparseness of Australia, open schools have been part of the education system across the country since the early 1900s, when they were established to meet the needs of the geographically isolated. Each state has open school providers organised according to State acts. The concept of the open school has evolved since the correspondence school was established in South Australia in 1920, followed by School of the Air in the 1950s and through to the current OAC – an evolution that reflects changes in technology and client diversity. The State Government Education Act of South Australia is interpreted through the Department of Education and Children's Services (DECS) Administrative Instructions and Guidelines.

Governance

Government schools within South Australia exist in a system of local governance, where the Principal and the Governing Council have joint responsibility for governing the school.

Members of council are members of the school community – staff, parents and community members who volunteer their time.

The Governing Council's role is directed by the constitution and code of practice. In this model of governance:

- the co-operative role of Governing Council and school staff is emphasised;
- management and governance are clearly separated;
- management and educational leadership are the domain of the Principal and staff;
- the focus is on improving student learning outcomes;
- broad directions are set and monitored by the Governing Council;
- site leader and staff are responsible for reporting; and
- joint areas of accountability are minimised.

Governing Councils work with the site leader to:

- *set broad direction* – This involves identifying and incorporating, where possible, student, parent and community input and values into the broad direction of the school. The Principal brings the staff perspective to these undertakings. The broad direction may include a future vision, a statement of purpose and a set of values that all clearly focus on improving student learning.

- *develop broad directional policy* – The Governing Council develops broad policy statements that facilitate the achievement of the school vision and broad direction.
- *initiate and approve recommendations and strategies* – All recommendations must conform to government policy, industrial agreements, DECS policy and direction, and site decision-making structures.

Challenges

This model of governance is effective where there is a strong sense of community, both in terms of location and educational focus. The students' diverse backgrounds, learning requirements, reason for enrolling, and geographical location do not provide a sense of unity and community for governance purposes. Local governance requires committed people who volunteer their time for the benefit of the college, but the dispersed community reduces the efficacy of the governance model because consultation, participation and shared concerns are difficult to achieve. The geographical isolation also hinders social networking and the sharing of knowledge and concerns.

The short-term nature of enrolments is not an incentive for parents to commit their time, as the possibility that they may influence and effect change is limited. Parents of school-based enrollees have a strong association with their home school and given that their child is enrolled part time and for a short time, they do not perceive this as a good or necessary investment in time. The college therefore struggles to recruit and retain parents and community volunteers on this body.

Strategic directions and policy are largely developed within the school context. Council members may be consulted as part of the process and do approve developments, but they are not involved at the ground level throughout the process. The limited opportunity to influence change because of the short-term relationship with the school, combined with the decision-making and consultative structures, does not encourage engagement.

Families are often isolated socially, do not feel part of the community, and lack the social capital to confidently join in and be involved.

Organisational model and culture

Until 2008, OAC had been organised as an R–12 college operating on two campuses as three schools: Port Augusta School of the Air (R–7); Adelaide R–10 School, Adelaide Senior Secondary School; and Access Media, a separate materials development unit. The college is undergoing a restructuring to incorporate materials development and to operate as one college rather than three separate schools. Materials development and associated functions will now become part of school operations, with positions established for these purposes. The aim of operating as one college is to streamline systems, enhance co-operation across year levels, and improve transitions and outcomes for students.

Figure 8.1 outlines the new leadership structure within OAC.

Challenges

The structure of OAC has, until recently, been three schools operating largely independently with separate staff and leadership meetings. Common systems existed for decision-making and for managing staff and curriculum, but there was little co-operation or sharing. The lack of coherence across the year levels created gaps for students as they transferred into the senior years.
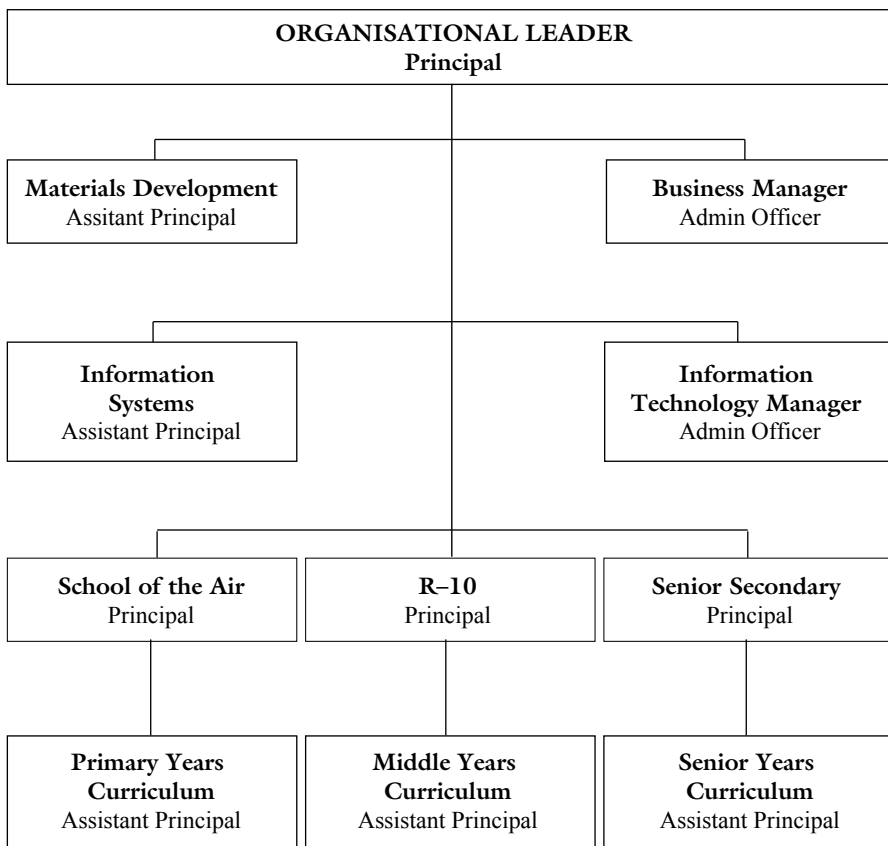
Figure 8.1: Organisational structure of OAC.

Now, however, each of the Principals has cross-college responsibilities, common meetings are held and curriculum is mapped and developed for R–12. The resultant shared understanding provides a more effective service, greater understanding and improved curriculum coherence and cohesion across and between year levels.

Funding model

All schools are funded by the government based on the number of students enrolled. This provides schools with operational funding for human resources, curriculum and facilities. Schools receive additional funding for students who are transient, have disabilities, are from low socio-economic backgrounds, are Aboriginal, or have parents with limited education. As OAC has a high proportion of these groups of students, there are proportionally more funds allocated to it. Schools determine how the resources for these groups will be used based on their specific needs and the resources available.

Extra leadership time above the formula is built into OAC's resource allocation. Recognising the complexity of the three-school structure and the transient nature of students, OAC has one Principal per school and one for the college. The college receives a further supplement to recognise the fact that a teacher's instructional load is 25% less in the open school model than in a conventional government school.

Funding for building facilities is managed by the school with which OAC shares a site. There is no differentiation in this funding for the OAC.

The significant cost of postage and telephone is managed by DECS and sits outside of the resources allocated. Recent renegotiation of the telephone contract has highlighted significant increases in costs and the college is now in negotiation with DECS about how these costs can be minimised. If the college had been responsible for these functions, there would have been greater awareness of and management of the costs.

Some funding for specific projects is available for all schools (government and non-government) from the federal government. According to a recent election promise, funds will be provided to ensure that all students in years 9–12 have one-to-one access to a computer.

Students (or parents) pay the OAC a materials and services fee to cover printed workbooks, CDs, textbook and resource book loans, kits, software licensing and loan computers. This fee is set at a maximum per student per year, and represents about 2.5% of the annual budget. Students who are in financial difficulty are able to be exempted from fees as a result of means testing criteria.

Challenges

The current funding model is complex and has limitations for the school. The model predetermines the money for teaching, leadership and support staff. Using the money in a different way requires negotiation and agreement across staff. When one area is under-resourced, other areas suffer financially.

In circumstances where students are enrolled short term with the intention of re-connecting with the home school, OAC does not receive any funding for the students.

In the senior years, there is a misconception by Principals of the financial effect on their own operating budget of enrolling a student part-time with OAC. This can result in Principals not providing the breadth of curriculum possible for their students. Senior years school-based students enrolled with OAC for one or two subjects are counted as part-time enrolments for both schools. However, for resource purposes, the students are 1.0 in their home school and part-time at OAC. Because the school is being funded for having the full-time-equivalent but not teaching the student full-time, the department recoups a set amount of money from the school. Although this process ensures the home school retains some funding, it is unnecessarily complex and leads to confusion and misrepresentation of the cost of open access.

Another inequity in the system funding is the fact that some other specialist schools do not have the same cost-recovery impositions as OAC does.

Student success rate

Measures of a student's success include retention, participation, work return, attendance and achievement results. The college's average achievement score for the school certificate reflects the state average, with a 1–2 % higher proportion of students with E grades and 1–2% lower proportion of students with A and B grades.

Retention within year levels compares favourably with that in schools with similarly complex enrolment cohorts, although retention rates overall are significantly lower than the state average. A survey of senior school students in 2007 showed that 10% left before

completing the first semester. Of those students surveyed, a third were working full-time, a sixth had family care commitments and the remainder were seeking work, working or studying part-time.

KEY FEATURES OF THE SENIOR SECONDARY PROGRAMME

Target audiences and curriculum

The senior secondary school offers the South Australian Certificate of Education (SACE) and some Vocational Education and Training (VET) certificates to students aged 15 years to adult. Students are broadly divided into two groups:

- *school-based* – This group includes students enrolled in another secondary school (government or independent) and who access OAC for one or two subjects the school is unable to provide access to (because it does not offer the subject or there is a timetable clash).

  The school-based group also includes students who are enrolled because of medical issues or because they are at risk of leaving school or being excluded.

  Approximately half of the full-time-equivalent enrolments are based in another school.

- *home-based* – This group includes students who are home-schooled, geographically isolated, experiencing health issues, young parents/care-givers, travellers (only those students who are residents of South Australia, or who have begun their South Australian senior school certificate are eligible), or incarcerated or who have family or work commitments. Thirty-two per cent of all senior years enrolments are home-based and 25% of enrolments are adult home-based students.

Enrolments are geographically spread out, with very few groups in one area having more than four students. The split between country and metropolitan enrolments is relatively even. There has been a slow decline in enrolments over the last four years, but little change in the demographic proportions. In 2009, enrolments increased markedly, up to 130 full-time-equivalents in year 11 and 12, most likely as a result of the economic recession. Figure 8.2 on next page details enrolment in 2008 by subject and type of student.

The South Australian Certificate of Education (SACE) is the mandated curriculum offered in all schools in South Australia. It is a broad-based, comprehensive and vocational curriculum. The high numbers of enrolments in the senior years allows the college to offer a large selection of subjects available within the certificate, thus expanding the subject offerings of all schools that use our services. Fifty different subjects are offered in the final year of the certificate.

Languages are a key focus of the college's curriculum, with four languages – French, German, Indonesian and Spanish – available in senior secondary.

In partnership with another government school, the college is a Registered Training Organisation. Only two other schools in South Australia have that status. Being a Registered Training Organisation allows the college to deliver and accredit those Vocational Education and Training certificates for which the college is registered. Currently, the four industry areas of Multi Media, Business Administration, Enterprise and Entrepreneurship, and Community Services – Child Care are available.

Vocational competencies can be accredited as part of the school certificate.
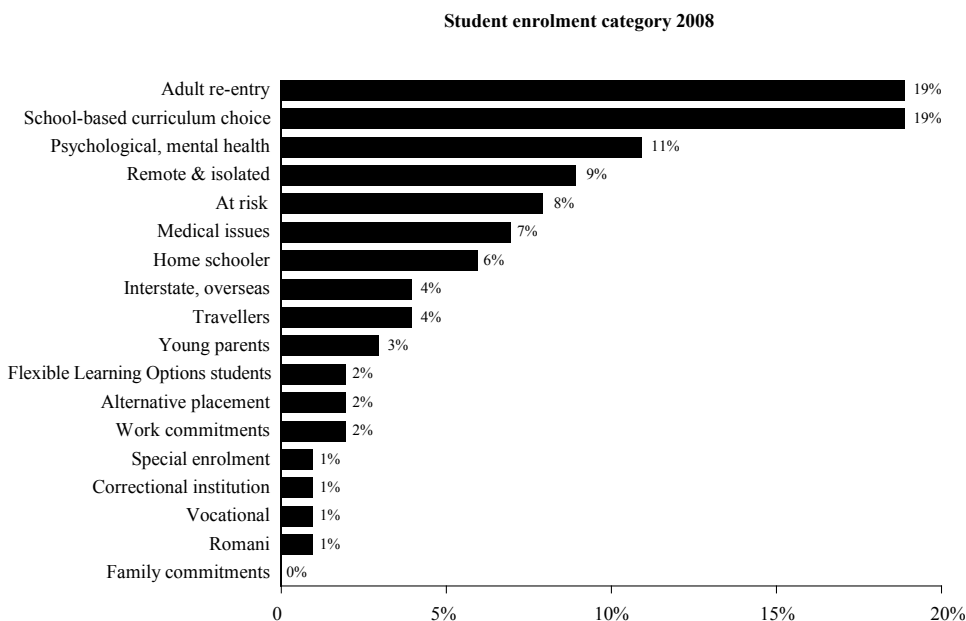
Figure 8.2: Enrolment in OAC by subject and type of student, 2008.

Challenges

Distance restricts to some degree the subject choices of students. Where practical work is an essential component of assessment, the college has taken the position of not enrolling students if the practical requirements cannot be adequately met because of limited access to materials, facilities or supervision. With improvements in simulations, some practical requirements will be achieved, but it will be a long time before the manipulative skills of titrations, for example, will be available in this manner.

For some students, OAC enrolment is a form of social support. These students require specialist services outside of learning support such as health and counselling, which the college does not have the expertise or resources to provide.

Degree of openness

The college was established to ensure that all students within the state, regardless of location, have access to the full range of subjects.

Students who would like to enrol as OAC students must be considered isolated according to the criteria described above in "Target Audiences and Curriculum". The *average* school student is not permitted to enrol as a full-time student. Students enrolled within another school are able to enrol in subjects in the senior years, as well as in languages.

Both full-time and part-time enrolments are encouraged.

Fees are capped and those students who are in financial hardship receive government subsidies.

Students with special needs are a key area of focus. Within this group are:

- students with a medical condition (physical or psychological, with a doctor's certificate)
- prisoners
- Aboriginal and Torres Strait Islanders
- school excluders
- young parents/caregivers

The senior years certificate covers the final two years of schooling. However, the certificate may be achieved over a longer period.

At year 11, most of the learning is divided into two semester-length units and one full year for year 12. Because an external organisation manages timelines for assessment, reporting and accreditation, the school needs to work within these constraints. The college therefore stops enrolments in week four of each semester.

The South Australian Certificate of Education (SACE), the mandated curriculum, has some compulsory elements that all students must attain, including literacy and numeracy standards. Flexibility and access are two of the fundamental principles of the certificate, which are achieved by providing a broad choice of subjects and broad choice within subjects, including choice of content and of assessment and learning mode. This is not always translated to the student. A range of subjects that do not prescribe content does provide students with flexibility of topic, skills of interest, assessment and delivery. Students are able to accredit learning outside the school in activities as diverse as participating in elite sports, achieving independent living, and playing in a rock band. Learning through a range of vocational certificates may also be accredited. A common example would be that students who are working at the local supermarket and studying some retail competencies may have this included in the certificate.

The college uses the full range of flexibilities within the curriculum and accountability structure to provide relevant learning and accreditation opportunities for the full range of students. Forms of recognition are prescribed through an interview and portfolio process, with teachers trained to ensure equity and validity.

Enrolments in subjects and programmes are limited only by staff availability. It was for this reason that, in 2008, the school had to limit, for the first time, enrolments in one of the Vocational Education and Training (VET) certificates.

Subjects at year 11 generally do not have prerequisites, although there may be recommended prior learning. At year 12, it is recommended that students have completed the year 11 subject or equivalent. The college ensures that as much of the curriculum can be achieved without compulsory attendance face to face. Practicals are mandated in some subjects and, where students are unable to attend practicals, enrolment is restricted.

Students are advised at enrolment that access to the Internet is required. When access to technology is an issue, students are first encouraged to find access, which may be provided through their local school or library. Otherwise, the college will provide loan computers and Internet dial-up connection. In extreme circumstances, teachers fax or mail additional materials and make alternative assessment arrangements if required.

Challenges

Inequities and misconceptions exist within the system. The fact that students are able to study languages with another government-funded provider for no extra cost to the school or the family means that many students who would benefit from OAC's service are denied access because of cost. The lack of a clear understanding about how the money for school-based enrolments flows also means that some students are not provided with the choice of subjects possible or their families are required to pay extra money for this provision.

The perception of OAC as a school of last resort rather than a very viable and often more appropriate choice for some learners means that many schools do not provide the option of open learning. As well, parents are often concerned that learning in this mode is less effective than face to face. Overcoming the misconceptions around cost, access and quality is very difficult to achieve.

Curriculum development and production model

The South Australian Certificate of Education (SACE) board determines what curriculum will be accredited within the certificate. Included are centrally developed subjects, locally developed subjects, vocational certificates, university courses, national and international certificates, as well as learning outside the education sector.

The college selects, from subjects available through the board, those it believes to be relevant for a diverse student group. Decisions, ultimately made by college leadership, are based on student interest, staff expertise, issues of social justice (e.g., Aboriginal Studies) and school capacity.

Until 2008, materials development was managed by a government-funded materials unit at the college. The unit prepared student resources mainly in print form but with some DVDs and CDs. Materials developments were mainly from the ground up. The few purchased courses were modified to meet the curriculum and assessment requirements of the board. Materials for vocational programmes are largely purchased and adopted with little change. Mathematics programmes are developed around recognised textbooks. The expected lifespan of courses developed in this way is five years, but many have been in use much longer. The model for developing material relied on a writer – a subject expert who developed and wrote materials under the guidance of a manager and with feedback at regular points from a reference group.

Now, however, this model is being replaced with a more dynamic approach. Materials will be developed for an online environment that will be engaging, relevant and current. Materials in this environment are easily adaptable to ensure currency and can be adapted quickly and effectively for the needs of individual teachers and students. There will be greater use of purchased materials that can be adapted or adopted for our context and curriculum. Distance schools across Australia have recently formed a co-operative (called the Flexible Learning Exchange) for the sharing and co-construction of materials. This will enhance networks of teachers across the country, promoting the sharing and development of expertise in e-learning and reducing material development costs. Materials will be developed in modules, which can be combined in different ways for different groups of students and to meet different learning outcomes.

Distance education teachers will develop the materials in teams, sharing their subject and pedagogical expertise and further developing their e-learning skills. Being involved in the materials development and having the ability to customise the materials will give teachers

ownership of the learning and teaching programme which they can then share with their students. The online environment encourages continual revision, enabling teachers to keep resources relevant, current and engaging.

In the online environment, the appropriate instructional media for the subject will be used. For example, physics and maths courses in the senior years use Centra. All subjects will involve asynchronous subject Web sites within a secure learner management system. Learning objects will be open-sourced or purchased. Where Internet access is an issue, materials will be provided on CD, in print form or both.

Challenges

The Department of Education and Children's Services has closed the materials development unit without providing resources for an alternative model. The challenge of providing high quality curriculum resources for ODL without funding is significant, requiring a total rethink about what are appropriate materials, how they will be developed and who will be involved. Teachers' roles will change to include course development, and materials may become less refined, having to be sourced from elsewhere and adapted for use or updated on an ongoing basis.

On the plus side, this new approach is exciting, given that teachers will be able to adopt and adapt materials to suit their own creativity and that of their students. Those teachers who were comfortable with the old model will be challenged by the demands to become proactive in their teaching and in the development of e-pedagogical skills. Learning about e-teaching will become a significant component in the college's professional development needs.

Processes will also need to be developed to ensure that high quality materials are available to the system while flexibility and ease of use for the distance education teacher are maximised.

Copyright has previously been the responsibility of the materials unit. As teachers will have the ability to add and amend materials online, they will need an understanding of, and adherence to, copyright regulations.

Course delivery model

Traditional senior school teachers have, on average, five subject classes with 15–30 students in each (or 75–150 students in total).

Full-time teachers at OAC, by comparison, are responsible for 76 student subject enrolments per semester across a maximum of five subjects (where year 11 Mathematics A and Mathematics B are viewed as two subjects). Currently, the major mode of course delivery is a weekly telephone lesson of 45–50 minutes to a group of one to eight students. The lesson is generally focused on the course print materials. This formal contact is complemented by resources and tasks on subject Web sites and individual responses via e-mail, phone and visits. This may become a less formal arrangement with the move to mainly online materials. Subjects using a net-meeting forum continue to incorporate the telephone lesson to ensure connectivity is maintained.

Subjects such as science, with a mandated practical component, involve onsite practical sessions over a number of days. For other subjects, seminars, revision sessions, camps or excursions may be organised based on the curriculum, assessment requirements and student need.

A subject's Web site provides learners with access to resources and teaching spaces (e.g., discussion forums for use as assessment tasks; memo tools for use in developing critical understanding of content; and other Web 2.0 tools).

In circumstances where students have unreliable access to the telephone and Internet, or are overseas, delivery is by correspondence. Students complete course work from the printed materials and return it to the teacher to mark.

Challenges

One key challenge is the lack of face-to-face contact. This means it is very difficult to provide the just-in-time ongoing feedback so important in the face-to-face setting. Follow-up and informal contact are also less easy between students and teachers. On the plus side, however, students are more likely to develop strong problem-solving and independent learning strategies, and therefore will be very clear about an issue when they do contact a teacher. These are good skills for their future lives. Overall, ICT has enabled more flexible, just-in-time and immediate feedback.

Learner assessment

The South Australian Certificate of Education (SACE) board describes assessment requirements within each subject. Students with special circumstances (e.g., a health condition) may have special provisions for assessment, including extra time or assistance from a scribe or computer.

Summative assessment can be both school assessed and centrally assessed in year 12 subjects. School-assessed work is set and marked by OAC teachers and may be subject to central moderation to ensure standards are consistent. Centrally assessed tasks are set and marked by the state's assessment board. In the main, this takes the form of exams, but may include research assignments and presentations.

Formative assessment is recommended for all subjects. The delay in delivery of assessment tasks for formative assessment means that assessment does not occur to the same extent in distance mode as it does in the face-to-face school. The advent of e-mail has resulted in a significant increase in the amount of formative work submitted.

The vocational certificates have a workplace learning component. Students are required to undertake a number of hours in a relevant workplace. In some circumstances, this is assessed in situ. Where possible, teachers visit the workplace and, where distance is an issue, the teacher works closely with an onsite supervisor to assess students' workplace capabilities.

Teachers are encouraged to be nominated as moderators, examiners and markers for accredited programmes.

Challenges

Practical skills are more difficult to assess and support in the distance environment. Where they can, local schools provide support and resources for their students. Validity of work can also be an issue, with plagiarism being an increasing problem in all schools. Teachers use various methods to authenticate student work. Test supervisors are identified for each student. Their role is to validate that, in the case of a test, it is the student's own work, and that the task was undertaken in the conditions prescribed. Where students are doing extended writing or research work, they are asked to submit drafts at critical

progress points. Where plagiarism is suspected, Internet tools are used to investigate academic honesty.

The main areas that require attention:

- *student adherence to timelines* – Students often request and are granted extensions on their work deadlines. While this is beneficial, it has the disadvantage of pushing student and teacher workload toward the end of the semester when the load is already rising. Postal delays and technology problems magnify the time issue.

- *verification of student work* – Not having the ability to observe a student's work in the class makes it difficult to detect and substantiate whether a student is receiving major help with his or her work from someone else. Teachers, through conversation and managing drafts of the work, need to be vigilant.

- *OAC reliance on other sites to act as exam centres* – External exams, held once a year for year 12, are generally sat at the student's school. The college organises a school located close to the student to be his or her exam centre. This relies on the goodwill of the school and extensive organisation by OAC.

Learner support services

A range of support services is provided to students on their enrolment, with particular focus being given to those students who are not connected to another school.

- *enrolment counselling* – School-based enrolments are managed in the home school and either faxed or e-mailed to OAC. Home-based enrolments are managed by one of OAC's team of counsellors. As most students are new enrolments, an extensive face-to-face interview is preferred to ensure subject selection is appropriate for the skills, pathways and circumstances of the students. Some interviews are conducted by phone.

- *counsellor services (case management)* – Home-based students are assigned to a counsellor who advocates and provides advice and guidance. The counsellor also acts as an intermediary with teachers, as needed. As well, the counsellor connects students to outside support agencies where there is an identified need. The service is provided face to face, by phone, online and, less frequently, through visits.

- *mentoring* – Teachers identify students who would benefit from extra support from a mentor. When teachers volunteer to act as mentors, they get a slightly reduced teaching load. The aim is to pair a teacher and students who already have a relationship, although this is not always possible. Mentors contact their students regularly to listen to concerns, provide organisational and study support, and give learning advice.

- *study skills and literacy support* – Teachers within subjects work with students to help them develop into independent learners who have improved time management and organisation skills. Literacy support is provided by scaffolding literacy skills within subjects. Where students have been identified as having literacy and numeracy difficulties, targeted support is being provided by teachers.

- *library service* – The Marden Education Centre Library provides a library and information service for the staff and students of the OAC. The library caters to the information, research and recreational needs of all students. The library has an extensive collection of resources, including books, newspapers, magazines, DVDs, CD-ROMs and audio CDs. There are also online resources such as Encyclopedia Britannica and Ebsco (a newspaper and magazine database). Teacher Librarians are

available to work with students and staff to help them select and use a variety of resources to complement the work being done in lessons and other aspects of their schooling.

- Students are able to ask for resources and assistance with their work by phone, fax or e-mail. Resources are sent out to the student, with follow-up contact as required. The library also provides a range of activities for students to become involved with, including Big Read Storytelling sessions, a book club using Centra, and traditional-type lessons and activities.

- Computers and other facilities are also available if students come into the Marden campus.

- *Aboriginal students* – Ten per cent of students who enrol are of Aboriginal background. A leadership position and an Aboriginal educational officer provide learning support and advice to this group. Learning support includes an e-learning homework centre, subject tutors and the availability of specific career and transition advice, family liaison services and mentoring.

- *visits/inductions* – Students new to ODL are given information and support through an induction process. For home-based students, this occurs at enrolment time. Induction sessions are held at various schools early in the school year.

- *socialising* – Student events are organised to allow face-to-face celebrating and socialising. On-campus days, with activities that enable students to meet others in a social context, are organised by students. The activities are well received, although attendance at most events is low as a percentage of student population. Ceremonies to celebrate student success include merit awards, graduations and a final-year dinner.

Challenges

Providing students with adequate exam experience has not always been a success in ODL. At OAC, there are no exams in year 11 of the certificate and few practice exams are included in programmes. Year 12 may be the first time students experience exams. Teachers prepare students by providing timed tests and trial exams during the year. Where students are not in an institutional setting, the simulated experience is minimal. Exam revision sessions are provided as seminars and on the phone, but up-take is mixed. Because students are dispersed, it is not realistic to provide exam centres across the state for this experience.

Students in ODL are generally transient, enrolled only for short times. The counselling and enrolment process is therefore more time-consuming than the equivalent in face-to-face school. The college enrols the majority of its population as new enrolments each year. Thus, more time is required to determine the skills, aspirations and learning requirements across the student population. More of the OAC cohort are also linked to another site or service, which involves referrals or information-sharing.

Social network opportunities for students are limited because of the isolated nature of the cohort, both geographically and psychologically.

Use of information and communication technology (ICT)

Information technology is used in four main functions at OAC, in all schools: school administration; student records and distribution; library services; and curriculum.

The school administration functions (management of financial, asset and human resources) are handled through the use of a database developed and provided by the

education department. The school system is linked to a central system for ease of transfer of information. Student enrolment information, for example, is entered into the department database. From there it is transferred to a second database for allocation to teachers and distribution, a third database for student achievement reports and a fourth database to report achievement to the South Australian Certificate of Education (SACE) board or Vocational Education and Training (VET) authority.

Student details recorded on enrolment include:

- contact details for student, school, parents
- demographics: age, gender, geographical location
- previous learning
- learning goals
- special education needs
- name of test supervisor
- subjects selected
- Internet access
- fee payments

Lesson times and groups have been flexible and largely determined by negotiations between teacher and student. With the introduction of a new database, timetable information will become more like that of a face-to-face school. Students are allocated to teachers, telephone lesson times are pre-determined (although there is flexibility to move), and this information is linked to records of student attendance and achievement.

As in all schools, teachers maintain class records of student achievement for individual tasks. The system mandates that formal reports be provided in writing twice a year, but OAC currently reports four times a year. The new database will allow for ongoing reporting on student work in a secure environment. Comments and marks will be recorded by teachers, and students and parents will be able to access this information at any time.

The accreditation authorities require that schools enter data into a specific database for certification.

Students are able to access information about resources remotely through a library system.

The curriculum function includes:

- *course development and delivery* – Subject Web sites are developed in a learning management system. Resource materials are developed and uploaded into the learning management system. Learning and assessment tasks are designed to use the Web 2.0 tools available. Discussion forums, memo tools, wikis and blogs increase opportunities for interaction and co-operation that in a face-to-face school would be achieved in the classroom. Internet and e-mail are used to provide information to students and individual ongoing learning support.

  Net-meeting allows teachers and students to share applications, a white board, and video and audio in real time, as one would in a classroom. Teachers prepare PowerPoint presentations that contain the essence of the learning and which students are able to access at anytime.

  Providing dynamic feedback on student work or demonstrating simple tasks is enhanced in distance education by using Capturecam software. Teachers can

quickly capture a demonstration, with both video and audio, and many teachers use Capturecam to provide feedback on student work.

Videoconferencing has had limited success. It has the capacity to work for groups of students in one location with video, audio and application sharing. Student access is an issue, however, because of cost and bandwidth limitations.

- *course assessment* – Activities in the Web environment are increasingly being used for assessment, with tasks being set using discussion forums, blogs, wikis and online quizzes. Careful consideration of how to structure the activity is required for success. Discussion forums with engaging questions and required processes for contribution aid the outcome. These tools are particularly useful for group tasks when students are geographically dispersed, allowing interaction over distance. These tools are also useful in showing students each other's work and allowing teachers to provide critical feedback that improves the depth of understanding of all students. As well, ICT promotes student presentations of their learning with supporting audio and visual in real time.

- *student support services* – E-mail provides students with the quickest response time when contacting teachers and support staff.

The social aspect of the school is minimal in ODL. A Web site has been developed to provide students with study support and the opportunity to socialise through discussion forums. The site includes study tips, how-to tips, counselling information and contacts, an introduction page where students introduce themselves, a gallery where they can put photos and artwork, and a young parents section.

Where a dedicated group of students actively uses the site, it becomes the ODL equivalent to the school yard.

- *other* – The college runs a remote ICT help-desk for staff and students. The number of IT support staff and associated infrastructure is greater than for an equivalent traditional school. Any down time in the system causes disruption to teaching and learning programmes and requires urgent attention.

Challenges

The department database is designed for traditional schools and does not cater fully for the distance setting. The OAC's distance education context requires the college to keep information about the school the student is enrolled in, the name of the distance education co-ordinator in the school, and parent details. Test supervisors and Internet access are additional, and timetabling is constructed differently for distance education than for traditional education. Commercial databases are being investigated for their adaptability to the college's requirements.

Where students are unable to access hardware to support their learning, the college provides a second-hand loan computer. Students in years 9, 10 and 11 meeting specific criteria are provided with new computers by a benevolent foundation with whom the college has an agreement. The criteria include financial disadvantage, enrolment on medical grounds, residency in South Australia for five years, and a commitment to continuing schooling.

Internet access is more problematic, with many regions of South Australia restricted to dial-up or limited bandwidth. The college will provide dial-up Internet access in some circumstances. Download costs in regional areas are also high, with many families using their monthly allocation in a few days to access resources and lessons.

Teachers group students based on their Internet connectivity, trying not to mix dial-up and broadband, as the difference in download time is significant and causes frustrating delays for some. In many instances, teachers will use the net-meeting environment with the telephone rather than use the Internet audio.

Moving resources and lessons online shifts costs from the system to the individual. In addition to paying for print materials produced and sent out by the college, students and their families now have the additional cost of the hardware, Internet access, downloading and printing.

Teacher professional learning in the use of ICT and in understanding the capacity of ICT in e-pedagogy is critical, costly and ongoing. New and improved ICT is continually coming available for use in ODL. This means that ODL settings need to juggle the competing demands of knowing what is available, what is useful, and what the costs are of teacher training and incorporating the technology into programmes.

The ICT help-desk is a valuable support for students. However, there is a limit to the efficiency of the support that can be provided when students work at a distance. Platforms used by students at home are not as well managed or consistent as they are in schools even though the college provides information about operating requirements. Whereas materials and software provided by the college may work on the institutional system, they may not work on the student's personal system. This can cause extensive delays in a student starting course work and lead to frustration.

In the interests of safety, the DECS has restricted Internet access to safe sites. Blocks restrict the use of sites to those that are useful and readily available to students.

Staff training and development

Staff training and development is a priority in the state system. Under a departmental policy, all staff are required to undertake 37.5 hours of professional development in their own time. The department provides a small amount of funding for professional learning to all schools, which in turn is supplemented within school budgets.

Schools in the system manage training and development variously. At the start of the year, all schools have two preparation days and are allocated two student-free days for teacher training and development.

Unlike regular schools, lessons are not scheduled on Fridays. As well, OAC starts teaching one week later than most other schools and has a week semester break in term two. The non-formal teaching times are used to establish classes, mark work, prepare lessons, visit students and pursue professional learning. An established pattern is to have a training day at the beginning of the year, and another whole-college training and development (T&D) day in the middle of the year. The senior secondary school also has three half-day T&D days in week five each term, and a full day at the end of the year.

Professional learning focuses on the priorities of the school. These times have been used in various ways, such as for planning, attending a presentation by an expert on a topic of interest, doing group work on projects, or just sharing. The day late in the year is used to reflect on the school year and to begin the operational plan for the coming year.

Teachers are encouraged to attend professional development relevant to their area of expertise and where there is a need within the college. If the area is identified by the

college as a need, the college pays. If it is part of an individual's subject association or more personal interest, the staff member pays.

LeadIT is a professional learning model used to help staff develop skills in e-pedagogy. Release time of half a day a week is provided to a small group of volunteer teachers who are not IT experts. These teachers work with a leader to provide just-in-time support to individuals, small groups and the whole staff. The group meets regularly to discuss issues ranging from technology skills, availability, systems and plan for change.

An induction programme for new teachers focuses on the systems, structures and teaching in the distance education world. The programme has formal and informal sessions. Much of the information is provided in a just-in-time manner by a buddy. In-house training in using the technology for teaching is provided.

There is no formal training required for ODL, although some universities offer a post-graduate programme.

The college invests approximately 5% of the total operating budget in professional learning.

Quality control

The same systemic models of review are mandated by DECS for all schools. One of these is the department's Improvement and Accountability Framework, which includes the following elements:

- *standards that the department is aiming to achieve;*
- *intervention and support policy, guidelines and programmes;*
- *improvement planning* – site leaders are responsible for developing improvement plans that address local, regional and departmental priorities, and for updating plans in response to self-review and emerging issues;
- *performance reporting* – document and report performance, keeping the college community fully informed through clear communication processes. school annual reports on student achievement, school priorities and resource management are endorsed by the Governing Council and forwarded to the department and community; and
- *self-review* – this includes procedures, tools and templates for rigorous monitoring and reviewing of school practices and performance.

The department has a five-year planning cycle, though schools often work to a three-year cycle of reviewing priorities and determining key directions within the department context. Each year, an operational plan is developed to establish priority work for the year and identify performance indicators (data), strategies, resources and timelines.

Learning materials development has quality control built into the process, with a flexible template and style guides to establish consistent structures. The college is exploring the use of a learning template so that all learning addresses the critical phases of development. Materials are edited and trialled before being distributed and shared with other sites. Materials are developed in a team environment and thus share good practice. Ongoing professional learning is built into school operations. Regular schools would not have such consistent controls.

Students, both continuing and early school leavers, are surveyed annually about teaching, learning and support. Surveys may be sent out with semester reports, e-mailed or done by

phone. This data, together with staff and parent surveys, student results, and retention data, is used to inform planning. Other data regarding the ICT help-desk, counselling support, customer service, and distribution services could also be collected and analysed.

Performance management processes at all sites enable staff to establish clear roles and expectations. Staff identify key areas of learning that align with school goals and priorities. The process supports professional development through regular feedback on observed behaviours provided in a constructive, objective and supportive way. Performance management requires that structured planning, feedback and review be conducted annually.

Challenges

- *aspects that cannot be assessed and controlled for quality* – There are three main aspects:

  - On enrolment, students are encouraged to establish a dedicated learning environment. However, students are in a wide range of living and working arrangements and variability occurs.

  - More people are involved in the process of providing education: school co-ordinators, test supervisors, tutors and others. The college relies on these people to provide quality support for the student and works with a number of schools and other institutions in providing services for students. However, this may cause variations in quality of service.

  - Communication with students and parents is variable, as students can more easily vanish from the ODL system without the college having the capacity to intervene.

  - Web connectivity is variable, as is the quality of access both for home-based and school-based students. Server downtime for net-meeting is an issue, as is access to enough broadband.

  The diversity of the OAC's students is a strength, but it also makes addressing the diverse learning demands complex. The transient nature of a large cohort of students makes it difficult to gain a complete understanding of their skill, interests and abilities and thus to cater for their personalised learning. The usefulness of data in terms of enrolments, retention and achievement is complicated by the non-continuous nature of the cohort. Using trend data and information about students within an annual cycle can be more useful than attempting to follow cohorts of students. It is difficult to predict enrolments from one year to the next, and thus planning staffing is ongoing. As many staff are employed on short-term contracts and late in the school year as numbers increase, there is continuous induction into distance education and turnover of contract staff is high.

- *recognition by key stakeholders of the quality of materials* – The materials produced by the college are held in high regard and many teachers will purchase them as the basis for their own teaching. The view of quality is often determined by perspective: most home-based students and families are very appreciative of the quality and the opportunities this provides them, while students in traditional schools are deterred by the fact that there is less contact time and less face-to-face instruction.

- *key factors and variables that impact on quality control* – Quality control is largely determined by the quality of the teaching process. The role of the teacher is changing and this will require support, both through professional learning and opportunities to work in teams, to share and to learn together.

Cost, efficiency, sustainability and scalability

Cost – Compared to face-to-face settings, OAC is more costly in the areas of materials development. Sharing developments with others states in Australia and producing more materials online will reduce production and printing costs. The college has a staff loading of 25% on instruction time above that of a regular school. This loading recognises that teachers work with smaller lesson groups, have increased marking (as students are unable to receive ongoing in-class feedback), have higher administrative demands, and need to travel to visit students. The online environment requires higher levels of technical support and consistently high quality access to the Internet. With the move to mainly online materials, the currently high cost of materials distribution and post will be reduced. Lessons are conducted by telephone to a maximum of eight students once a week for 50 minutes, incurring higher-than-normal telephone costs. The college has significantly lower costs for facilities and consumables.

Because of the increased costs of teachers, resource development, and post and telephone, OAC is seen by the system as an expensive schooling alternative. Parents are not required to pay more for open learning than for traditional schooling.

Efficiency – Overall, the system is efficient in delivering high quality education to large numbers of students, and in providing students with a breadth and depth of choice in what and how they achieve their high school certificate. The college has a large annual turnover of students and it has been the practice to re-enrol all students each year, though this is currently under review. Improving the communication and capacity of the OAC's data systems would improve efficiencies in:

- student enrolment – a better system would reduce double-handling of information;
- distribution and access of materials – moving to mainly online communication would reduce the need for massive distribution services, improving the process of allocating student passwords would give students quicker access to resources, and outsourcing services such as print and CD distribution would improve efficiencies and economies;
- timetabling – using a suitable data system would decrease the time required to establish student learning groups;
- fee collection – adopting simple fee structures requiring payment before access would reduce the incidence of bad debts; and
- registration cancellations – automated deregistration would save administrative time.

Sustainability – There will always be a group of students who will benefit from, and even require, learning in the open learning mode. South Australia has a large number of small regional schools that use the services of OAC to give their students access to choice. There has recently been a move for schools within regions to work together using Internet-based technologies to teach across distances and keep students learning within their school cluster. These clusters will, however, experience difficulties related to bandwidth, cost, teacher goodwill and scalability. The college will, in the short term, not be greatly affected by these developments. Nevertheless, it would be timely to look at other models of working flexibly to support these schools and their students.

Scalability – The college has achieved high levels of success in providing quality education to large numbers of dispersed students across large geographical areas. The size of OAC, the experience of staff, the low turnover of staff, and the development of quality practices ensure the college's scalability. That said, one concern is the ability of OAC is to employ quality new staff, as the number of teachers is in decline across the state. This

situation is compounded by distance education not being a preferred location for teacher trainees or for new graduates – largely because of the limited understanding of the role.

As well, with more schools moving to the use of online technology and working in regional clusters, the schools may not require such an extensive service from OAC. Regional schools generally wish to retain their youth by providing a broad curriculum locally, usually using the face-to-face model. This has had mixed success to date, but if the quality can be sustained, it may have an impact on OAC's enrolments. That model, however, does not have the scalability – and thus not the cost-efficiencies – of the current OAC model.

Regional Australia has poor Internet connectivity. While some schools have quick download times and large bandwidth, others struggle to maintain the connectivity when using technology such as videoconferencing. Delays in download and limited access will continue to limit the extent of online programme delivery.

CONCLUSION: IMPLICATIONS FOR PUBLIC POLICY AND STRATEGIC PLANNING

The implications of ODL in the experience of South Australia's Open Access College are noted below in order of significance.

Development of a shared vision

- Education authorities at the state and national level must support and promote ODL as a valued, quality learning option for today and for the future. Where systems have mandated or governmentally promoted learning by ODL, enrolments and student success have improved, with spin-offs in other learning areas.
- Developing and sharing the vision as a co-operative of all stakeholders ensures a focus that is developed and implemented together. Enabling all stakeholders to participate at a distance requires determination, persistence and excellent communication strategies.

Use of ICT

- Policy-makers and school management should be clear about their purpose and goals in adopting ICTs.
- Administrative functions can be effectively streamlined with the use of purpose-built databases and learning management systems.
- Ongoing, sustainable models of professional learning for teachers in e-pedagogies should be developed and supported.
- Sustainable, secure access to reliable ICTs for staff and students requires planning, budgeting and maintenance.
- Students should be given opportunities to manage collaborative tasks.

Curriculum and learning resources development and production

- Funding for the development of quality, accessible materials should be sustained.
- Copyright considerations should be addressed in the development and production of any ODL resource.

Distribution and access to resources

- Consideration should be given to outsourcing functions that are not a core ODL business, such as print and distribution on demand.

- Access to, and distribution of, texts should be assured.

- In regular schools, students are provided with consumable and non-consumable resources and materials, including software under licence agreement. Analysing the costs and benefits of these materials and the costs associated with returnable and non-returnable materials would better inform policy.

Enrolment

- All ODL must allow access to the full range of students – including those living outside state and national boundaries – rather than restricting access to those who meet specific criteria.

Promotion of ODL

- Steps should be taken to overcome any misconceptions about student learning outcomes in ODL.

- Broader marketing is required to ensure that all students who would benefit from ODL have the knowledge of its existence and advantages.

Teaching

- The ways in which teaching in the ODL model differ from teaching in the traditional education model should be recognised and understood. As challenging as it sometimes is to do, ODL requires providing students with:

  - adequate student/teacher interaction for effective learning;

  - feedback in a timely, useful manner;

  - just-in-time learning support;

  - access to practical facilities such as laboratories;

  - supervision to ensure safety and welfare of students working remotely on machinery; and

  - examination practise and supervision.

Alliances and partnerships

- The geographical spread of ODL students and the social isolation of many make the development of partnerships difficult and yet imperative. Policies and structures are required to enable and support these alliances.

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CHAPTER 9

CERTIFICATE IN TERTIARY AND COMMUNITY STUDIES: AN ALTERNATIVE LEARNING PATHWAY, OPEN COLLEGE, PAPUA NEW GUINEA

Abdul Mannan

ABSTRACT

Education reform in Papua New Guinea, combined with progress in achieving universal primary education, has increased the demand for secondary education. A large segment of the population previously denied secondary education needs educational opportunities to maximise their life potential. The conventional schooling system is incapable of meeting the current demand. The University of Papua New Guinea Open College was established in 2001 and a Certificate in Tertiary and Community Studies (CTCS) programme was developed to provide an alternative pathway for school leavers to: prepare for coping with academic studies in a higher education institution; or upgrade their skills for gainful employment or to return to self-employment in their communities.

Students are supported through study centres, where tutorials and administrative services are provided. The CTCS programme is self-financed through fees income and is cost-effective compared to conventional schooling system. The Open College (OC), as well as the CTCS programme, faces the challenges of most dual-mode institutions in respect to administrative autonomy and resource allocation. The student success rate and learner support have been gradually improving. Use of information and communication technology (ICT) will remain a challenge because of the fragile and unreliable telecommunication system. Staff development will remain a priority because of the scarcity of local professionals in the open and distance learning (ODL) field. The CTCS's strong reputation and general acceptance testifies to the implementation of strong quality assurance at all levels of the OC's operations. Rapid growth is also a concern for quality, but it suggests the likelihood of long-term sustainability.

BACKGROUND

Institutional profile

The University of Papua New Guinea (UPNG) is a dual-mode institution offering undergraduate and post-graduate programmes through face-to-face and distance mode. Insofar as distance education is concerned, the academic schools are responsible for the development of tertiary-level courses and providing academic support, while the Open College (OC) provides technical, administrative, logistical and support services for the development and delivery of programmes through its network of study centres. The OC mandate also includes development and delivery of pre-tertiary courses, provision of professional education and provision of community-based education and information.

The Certificate in Tertiary and Community Studies (CTCS) is a pre-tertiary programme of the OC, the latter having been established in 2002 to replace the Institute of Distance and Continuing Education (itself previously named the Department of Distance Education) and its adult matriculation programme. The former Department of Distance Education had begun delivery of the adult matriculation programme in 1978 to complement the secondary schooling by increasing the intake into higher education institutions and by providing opportunities to mature persons within and outside the workforce to continue their education and upgrade their qualifications. The adult matriculation programme was complementary in the sense that the curriculum was designed according to the school curriculum but condensed to complete in a shorter period than two years of conventional schooling.

The CTCS programme, although it maintains parity with conventional school curriculum in subject areas, also emphasises literacy, numeracy, life skills, and skill and community-based programmes of studies.

The following features of the human capital in Papua New Guinea underlie the necessity for the development of the CTCS programme:

- a literacy rate of 45% (overall) and of 38% in rural areas;

- an unemployment rate among the young population of 70% in urban areas and a very high degree of disguised unemployment;

- mature people either employed or unemployed and needing upgrading qualifications and skills to remain competitive in the labour market and to acquire skills for gainful unemployment; and

- the need to increase access to education for gender balance and social empowerment.

The formal schooling system in the country is unable to cater to the diverse needs of the adults and out-of-school youth who are either employed or unemployed. The CTCS programme was designed to contribute to the socio-economic development of the country by upgrading the educational qualifications, professional and vocational skills of adults and out-of-school youth by developing and delivering courses through open and distance learning (ODL).

National context

The education systems that started in the 1940s under the colonial administration and the church continued until the national education system was established in the 1970s with approximately 1,050 institutions, 9,060 teachers and 254,000 students. By 2003, the

system had grown to 4,000 elementary schools, 3,300 primary schools, 170 secondary schools and 140 vocational schools – employing a total of 33,000 teachers (National Department of Education 2004). The current education reforms began in 1994 and focused on the structure first, followed by the outcome-based curriculum. The education reform aims to expand access to school at all levels, reduce dropouts, upgrade quality and relevance of the curriculum, and improve the cost-efficiency of the system.

Part of the reform was to change the education system in Papua New Guinea to a 2-6-2-2 (years) system made up of elementary, primary, lower and upper secondary schooling (National Department of Education 2003). The elementary, primary, lower and upper secondary gross enrolment rates by corresponding age group are 90, 62, 23 and 7%, respectively, which shows the low access to education at upper secondary level.

Planned transition from grade 8 to grade 9 is 50% and from grade 10 to grade 11 is 25%, indicating the push-out problem due to lack of capacity. The school-age population (6–18 years) will increase from 2 million in 2008 to 2.3 million in 2015, creating more demand for increasing access to education. The national Education Plan (National Department of Education 2004) suggested using ODL to enrol grade 8 and grade 10 graduates who will fail to secure a place in conventional schools. The CTCS programme is seen as an alternative schooling system to cater for, among others, a group of young people who will miss or be pushed out of the conventional school system.

Legal and regulatory framework

The University of Papua New Guinea is a public higher education institution. The OC, one of its entities, is also a public institution mandated by UPNG to develop and deliver programmes through the distance mode. About 65% of the university budget is funded by an annual government grant and the rest is generated from student fees and other sources. The OC is a public institution, but does not receive government funds. It is fully funded from its fees income and a substantial part of its income is clawed back to the university for use in funding other programmes, thereby restricting its development (Abrioux 2007).

The university was established under the authority of a Parliamentary Act. The Act authorises UPNG to establish colleges, schools and other similar institutions to provide educational services. The OC was set up under statutory authority endorsed by the UPNG Council and approved by the National Executive Council – the executive authority of the national government. The OC's statute legally authorises it to develop and deliver pre-tertiary and professional programmes. Although the OC is not legally restricted from operating at the pre-tertiary level, the National Higher Education Plan II (Office of Higher Education 2000) suggested diverting resources to offer undergraduate programmes rather than an adult matriculation programme. Nevertheless, the CTCS programme is different from the adult matriculation programme and necessary for national, social and economic development.

The UPNG Academic Senate approved the CTCS programme, including curriculum, programme structure and bylaws governing the award of certificates. The programme that was validated by the UPNG Academic Senate does not require validation by external bodies, and CTCS graduates are treated as equals by higher education institutions for admission, although school leavers enjoy first priority in the admission process. In addition, adult matriculation was a popular programme, receiving general acceptance as a valid programme for preparing students for tertiary education. The CTCS programme is seen as a replacement for adult matriculation and is accepted by higher education institutions as a valid and better programme in preparing students for tertiary education.

Governance

Governance of UPNG is vested in the University Council. The University Senate sets academic policy. Three constitutional functional committees support the council and the Senate: the Standing Committee of the Council; the Planning and Resource Committee; and the Staffing Committee.

All OC matters related to academic, planning, policy, budget and staffing are referred to the appropriate university committee for deliberation and decision. Absence of OC representation on the Planning and Resource Committee results in unsatisfactory financial decisions, specifically budgetary allocation. The OC has a Management Board chaired by the Vice Chancellor and represented by all Executive Deans of the schools and Central Executives. All matters discussed in the Management Board must be referred to the university committees for approval.

Challenges

The university committee structure was designed to facilitate the decision-making process of a single-mode traditional university that is too rigid to accommodate the flexibility that is required for a dual-mode institution.

The management structure of the OC was introduced during the initial period of its establishment, shadowing the ODL model in Australia. Over the years, the OC has expanded in size, area coverage and programme development and delivery. The administrative structure and traditional university-wide rules and regulations provide little flexibility and autonomy in managing the affairs of the rapidly expanding OC. The funding model and financial management system remain ambiguous and inappropriate for meeting the flexible needs of the OC. The university authority has been encouraged to consider reviewing the organisational management structure to provide good governance for the sustainability and success of the ODL programme.

Organisational model and culture

The organisational structure of the university follows an integrated model (Harman 1993) of centralised authority and power. The administrative decisions for the operation of various administrative units of the university are regulated by the concept of the university as a whole with minimum devolution of authority. The OC is one of the academic administrative units of the university under the direct supervision of the Vice Chancellor and headed by an Executive Director. It has three divisions: Program and Production, Professional and Continuing Education, and Centre and Student Support.

The Program and Production Division is responsible for working with schools in developing new programmes; providing technical support such as instructional design, graphic design and multimedia for the development and revision of learning materials, production and distribution of materials to students; and tracking assignments, research and evaluation. The Professional and Continuing Education Division is responsible for the design, development and delivery of pre-tertiary and professional courses according to clientele needs. The Centre and Student Support Division is responsible for learners' support and for the management of study centres.

The OC has a network of study centres, including five regional campuses and their cluster of university centres and franchise study centres at strategic locations to provide support services to students. Regional campuses and prominent centres are equipped with classrooms, study carrels and computing facilities with local and wide-area

network. The regional campuses and centres are headed by a director and supported by administrative staff.

Management of the OC embodies a fair degree of entrepreneurialism while preserving the collegial values, and focuses on clientele needs and services. A learner-friendly ethos pervades all levels of its management and operations. Team spirit among individuals and administrative units facilitates the integration of work for the common purpose of facilitating learning. However, a similar ethos and principles do not prevail between the OC and other university-supporting units.

Challenges

Challenges are of two principal kinds: those internal to the OC and those resulting from the OC's relationship with the rest of the university. On the one hand are the considerable challenges posed in integrating the functions, roles and responsibilities of a large number of study centres, and accommodating a most unreliable communication system, which restricts the use of the wide-area network in these study centres. On the other hand, several factors affect the OC's relationship with the rest of the university. Most important of these is that ODL is not considered as a primary responsibility or focus by most academic staff or even by various service units and the central administration.

Other problems include the lack of clarity about authority, responsibility and line of communication, which results in tension between the OC and the university management; and the top-down executive decision-making done by central administration, with insufficient consultation in developing policies and procedures that impact the OC.

Funding model

Although donor funding supported initial development, the OC is a self-financing unit of the UPNG. Tuition and related fees have been adequate to meet operational expenses. The university introduced a relative funding model (Department of Employment, Education and Training 1989) for the allocation of government grants to various schools and functional units based on certain agreed-to ratios and the number of students enrolled. The OC, however, was denied (by the university) any allocation of government funding.

Moreover, during the early stage of its establishment, an arbitrary decision was taken by the university to distribute fee income from ODL undergraduate students as 60% to the schools and 40% to the OC. The 40% was subsequently reduced to 32% when 8% was allocated to Central Administration for its services to the ODL programme. Fees income from the CTCS courses were supposed to be allocated to the OC in their entirety and the year-end surplus, if any, transferred to the university's General Account. However, the "squeaky wheel" approach (Harman 1993) results in less funding for the OC, as funds are diverted before year-end to cover shortfalls in other academic and administrative units of the university.

Challenges

The funding status quo has proven costly to the OC's ability to develop additional courses and to enhance infrastructure and much-needed student support services.

A devolved financial management system is a precondition for the success of the OC. The financial decision and authorisation should go hand-in-hand with the physical activities and management decisions. The challenge is then to review the traditional financial

management system of the university and to devolve power and authority to OC management with a strong centralised monitoring system. In addition, government may be persuaded to provide dedicated, conditional grants to UPNG to support the OC's annual budget.

Student success rate

One of the challenges faced by distance learning is addressing low success and high dropout rates. Table 9.1 shows that of the total course enrolment in the CTCS programme, 96% of learners sat the exam in semester 1, 2007, and 90% in semester 1, 2008. The pass rate varies from 69% to 73% during that period. The dropout rate varies from 4% in semester 1, 2007, to 10% in semester 1, 2008.

Table 9.2 shows learners' grade achievements, which appear to present a normal distribution curve. During the period being reported, just under 50% passed with A and B grades, while the remaining passed with C and D grades.

Challenges

Learner success rate and grade achievement remain a concern for OC management. The need for improvement in student support services is recognised.

KEY FEATURES OF THE CTCS PROGRAMME

Target audience and curriculum

The goal of the programme is to provide opportunities to a large segment of the population who for some reason or another failed to pursue formal studies or have become social liabilities and would like to maximise their life potential. The OC makes all efforts to reach out to marginalised groups such as school dropouts, unemployed youth, girls, women, mature service and ex-service persons, professionals, community workers and prisoners. Since its introduction in 2003, the CTCS programme has attracted a large number of able learners from different segments of the population all over the country. The annual course enrolment increased from 3,700 in 2003 to 19,220 in 2008.

Table 9.3 (see p. 160) shows annual course enrolment by gender distribution and year.

The composition of the student body indicates a higher male to female ratio, but female enrolment is rising rapidly. Proportionately, female enrolment in the OC is lower than the average in the national schooling system.

About 70% of the students at the OC are between 19 and 25 years old and 15% are more than 31 years old.

CTCS curriculum

With the goal of developing a learning society (Mannan 2006b), the CTCS curriculum aims to meet the learning needs of a wide range of the population. The specific aims of the CTCS programme are to:

- prepare students with literacy and numeracy skills and subject knowledge that is appropriate to lifelong learning;

Table 9.1: Success rate among CTCS learners, 2007–2008.

Year/Semester	Total course enrolment	Sat for exam		Passed exam		Dropouts	
		Total	% total course enrolment	Total	% total course enrolment	Total	% total course enrolment
2007 Semester 1	7,585	7,316	96	5,242	69	269	4
2007 Semester 2	6,523	5,933	91	4,732	73	590	9
2008 Semester 1	10,525	9,449	90	7,373	70	1,076	10

Table 9.2: CTCS learners' grade achievements, 2007–2008.

Year/Semester	Grade achievements								Cumulative
	A		B		C		D		A–D
	Total	% total passed exam	Total	% total passed exam	Total	% total passed exam	Total	% total passed exam	Total
2007 Semester 1	843	16	1,749	33	1,469	28	1,181	23	5,242
2007 Semester 2	803	17	1,526	32	1,410	30	993	21	4,732
2008 Semester 1	1,115	15	1,859	25	2,206	30	2,193	30	7,373

Table 9.3: CTCS course enrolment, 2004–2008.

Year	Male	Female	Total
2004	2,220	1,480	**3,700**
2005	3,819	2,881	**6,700**
2006	6,020	4,730	**10,750**
2007	7,618	6,490	**14,108**
2008	10,525	8,695	**19,220**

- prepare students to cope with academic studies in higher educational institutions; and
- help students upgrade their skills for gainful employment or a return to self-employment in their community.

This programme has four main core components: Literacy, Numeracy, Civics and Development Studies and Life Skills. While students study economics, physics, chemistry and biology as preparation for tertiary studies, the CTCS programme also provides skill-based courses such as computing, business, crop production and agricultural management, tourism andplantation management for gainful employment.

The underlying framework for the CTCS programme is based on the philosophy of Delor's 1989 report: "Learning to know, Learning to do, Learning to live together and Learning to be." The core knowledge and skills covered under each of the main areas of the framework are:

Components	Core skills
Learning to know	Life skills, literacy, communication, numeracy, learning to learn
Learning to do	Managing a community-based organisation, managing a small business
Learning to live together	Law and citizen's rights, governance, local level participation, conflict resolution in families and groups, the rights of others, civic society, appreciation of environment
Learning to be	Health and well-being, everyday science, science and technology in development, appropriate technology

Courses are developed based on the core skills as identified against each area of the learning framework. Curriculum includes a combination of vocational and academic courses. The major thrusts of the curriculum development are on the acquisition of advanced literacy and numeracy skills, life skills and vocational skills that directly contribute to productivity

and the inculcation of habits of lifelong learning. The awarding of a certificate requires all students to successfully complete the following eight core courses:

Literacy 1	Numeracy 1	Life skills
Literacy 2	Numeracy 2	Civics and Development
Literacy 3	Numeracy 3	

In addition, the awarding of a certificate requires a student to successfully complete three more courses from the following:

Academic courses	Vocational/skill-based courses
Economics	Business Skills 1
Geography	Business Skills 2
History	Agriculture Management
Chemistry	Crop Management
Physics	Animal Productiont
Biology	Computing Skills
Development of Science and Technology	Tourism
	Plantation Management

Development of curriculum is a continuous process. A good number of courses are in the pipeline and will be added according to learners' needs.

The minimum time required to successfully complete 11 courses to fulfil the requirement of a certificate award for this programme is a one-and-a-half-year full-time-equivalent. Each of the courses is 15 weeks in duration, which include 13 weeks study, one-week revision, and one-week final exam. The notional load of each course is 100–120 hours of study period. Students also attend the Lahara session (summer session) to expedite the completion of courses in a shorter period of time.

Implementation of education reform includes reforming curriculum at upper secondary level to include both subjects and vocational courses (University of South Australia 2007). The curriculum is being developed and, once in place, will appear to be similar to the CTCS curriculum except for its emphasis on literacy and numeracy. However, the CTCS and the reformed conventional school curriculum will differ in respect to their audience and skill-based courses.

Challenges

A major future challenge will be to develop non-traditional skill-based courses to meet the changing national and regional needs, as well as the needs of the target audience. In addition, the shortage of qualified course writers will remain a challenge for developing materials for skill-based courses.

Degree of openness

The degree of openness of any ODL programme depends on the capacity of the institution to manage the degree of flexibility in accommodating students' diverse needs, their difficulties in coping with studies, and their individual problems (Meacham 2001). The OC, since its establishment, has been gradually opening up current limitations of time, space and locations.

Admission into the CTCS programme is open to all and based on assumed knowledge instead of pre-requisites. Students with any educational background are eligible for admission. However, students are required to sit a test in literacy and numeracy to prove their ability to cope with study requirements. Those who are unable to fulfil minimum requirement are discouraged from trying to gain admission and are referred to study Basic English and Mathematics courses before seeking admission into the CTCS programme.

Admission, registration, assignment submission and examination are time-bound. All students are required to register during a fixed period of time and study commences at the same time for all students. Generally, examinations for various courses for all students are conducted at designated locations on fixed dates. Unlike for students writing conventional school examinations that are conducted on fixed dates, CTCS students are allowed to sit for late exams at different locations in situations where law and order concerns, rough seas or transport problems affect a student's mobility to reach an exam centre.

Study is self-paced and self-directed (within the restrictions mentioned above), and while attendance at tutorial classes is optional, almost all students do attend. Students, however, are location- and time-bound when participating in these face-to-face tutorial sessions. Further restrictions may result from limited availability of tutors and classrooms for conducting tutorials.

Curriculum development and production model

The course development process begins with identification of the target groups' needs by open campus and centre Directors, requests from community-based organisations, and market demand. On recommendation by the OC Standing Committee (dealing with academic affairs), OC management decides about the development and delivery of a course.

Curriculum development for the CTCS involves curriculum and subject specialists, instructional designers, media specialists and desktop publishers. The group consults stakeholders in order to identify the needs and characteristics of the target group. The course writers are identified from within or outside the university. The instructional designer conducts initial training for the course writers on techniques and methods of course design and development.

The objective of each unit in the study guide is tied to the overall aim set in the course outline. There is an interactive link between the study guide, reading materials and learning activities. The learning activities also require students to interact with others in the workforce and in the community. The course is learner-centred in that the solutions provided allow students to assess their own learning. The use of action verbs in each objective of each unit allows students to see whether they have achieved that objective or not. Course materials include learning strategies for different styles of learning, including case studies, self-assessment, projects, reading and communication among peers.

The access device incorporated into the materials is a list and/or suggestions for reference, which are available locally. Students are also encouraged to make use of

learning resources available within the community. Student learning is supported through provision of solutions for activities, mock examinations, feedback on assignments, and communication with the tutor and mentor in the study centres or in the communities.

Learning outcomes for each of the courses are assessed through assignments, tests and a final examination. A questionnaire is distributed along with course materials to elicit feedback from learners. This is to ascertain the quality of the course material in all areas, such as readability, simplicity, connectivity and overall instructional effectiveness.

Challenges

The CTCS curriculum supports both young and adult learners. The learning materials, assessment and support services are designed to facilitate learning for both groups, although in some cases the materials differ in learning style and methods. While the emphasis is on student-centred learning that incorporates elements from both pedagogy and andragogy, it is not possible to draw a line between the two. The challenge, then, is to develop a research capacity to assess the effectiveness of current teaching and learning methods, and improve students' learning process and success rates.

Shortage of course writers will also remain a challenge for developing materials for new courses. Meeting deadline for course materials development has been a challenge and will continue unless OC recruits core subject specialists.

Course delivery model

The course delivery system includes a package of self-directed, print-based learning materials supported by face-to-face group tutorials at study centres. Some of the course materials are complemented by cassette and CD-ROM to enhance students' learning. In addition, individualised counselling is provided at study centres on an as-needed basis.

The OC delivers courses through a network of open campuses, university centres and study centres in order to facilitate the administration and management of course delivery. Course materials are distributed to students during the registration period in each semester.

The OC, through the study centre Directors and using set guidelines, recruits tutors locally who are responsible for scheduling and conducting tutorials, as well as for marking assignments and doing other formative student work. Tutors attend training for tutoring distance learners and follow tutorial guidelines for conducting tutorials. The tutors also prepare a tutorial schedule in consultation with their Director and students. The study centre Director monitors the tutorial schedule and from time to time consults the students about the effectiveness of the tutorial sessions. Tutors are engaged on part-time basis and paid on an hourly basis.

Challenges

As long as the conventional schooling system suffers from a shortage of qualified teachers, engaging qualified tutors for OC will also remain an ongoing challenge.

Attempts to provide supplementary support through online conferencing and teleconferencing have been thwarted by unreliable and narrow bandwidth communication systems (AusAID 2004). Use of radio broadcasts is not affordable and the OC is exploring alternative avenues to use radio, which is a popular communication system in the country.

Reliable basic computing facilities, including local and wide-area networks, remain problematic for most centres.

Learner assessment

The UPNG, by virtue of its statute under the UPNG Act, is authorised to award certificates for the fulfilment of the requirements of the CTCS award. The CTCS assessment policy and procedure are approved by the UPNG Senate and broadly follow the university assessment framework (UPNG 2006).

Learner assessment includes continuous (formative) assessment and final examination (summative assessment). Continuous assessment is done through assignments, essays, practicals, tests and other means. Continuous assessable work as determined during the course design and embodied in the course materials assessment constitutes 40% of the overall assessment weight of a course unit. Students must submit two to three assignments or any other forms of internal assessment for each course within a reasonable interval.

The final examination is conducted at the conclusion of each semester. Final examination constitutes 60% of the overall assessment weight of a course unit, and one must pass the final exam in order to pass the course and obtain a normal grade. A student must score 30 out of 60 to pass the final exam of a course. Pursuant to the minimum pass mark for a final examination, students who score below 50% in the final exam will automatically receive a failing grade. However, an allowance is made for a pass if the failing score falls in the range of 25–29. In this case, one can obtain a "conceal pass" with a D grade if the cumulative score (continuous assessment plus exam) is over 50 (out of 100).

Continuous assignments must be changed for each of the successive semesters for all courses on offer. The subject lecturers prepare new assignments during the early part of the previous semester. Fellow lecturers from within and outside the university moderate the assignments. The assignments are then included in the course outlines of each of the courses before being sent for mass printing.

Students hand in their assignments to their tutor for marking on a due date. Late submission of assignments is allowed only where circumstances justify such delays. Although there is provision for the moderation of marked assignment, the system has yet to become effective because of time factors and the shortage of lecturers. The marked assignments are returned to the students with comments from the markers.

The subject lecturer prepares the final exam papers and lecturers from within and outside the university moderate the exam for each of the courses on offer in a particular semester. The exam papers are printed by the OC's Headquarters and dispatched to the different centres, which conduct the exams. The centre's Directors send all exam papers through express mail to the Head Office for marking by the pre-appointed exam marker.

Challenges

Assignment turnaround time has been a challenging issue that requires constant monitoring and follow-up. Monitoring the submission of assignments on due dates for a large number of learners will remain a challenge in near future. Processing results within a short period between semesters is another challenge. A shortage of qualified markers to mark a large number of exam papers centrally has also proven difficult. Exam marking may be decentralised to overcome these challenges through a quality control mechanism.

Learner support services

The degree of success of distance education students in their learning process is positively correlated with the amount of easy access they have to support services and with a communication system that facilitates their interaction with course co-ordinators, fellow students and the community at large (Simpson 2002).

Apart from learner cognitive support in the materials, the OC has established study centres around the country to provide administrative and academic support services. The open campuses and study centres provide facilities such as fax, telephone, computer lab, classroom space, mini library, and study and study carrels.

All campuses and centres conduct orientation sessions for new intakes on the first day of the academic semester and explain to them various academic and administrative policies, procedures, rules and regulations concerning their studies. A learning guide, "First Thing First", also supports students. The booklet begins with informing the reader about what the learner can expect from education, and advances on to explaining distance and flexible learning in brief. It then provides learners with study tips, hints on being organised and prepared for studies, learning strategies, reading and research skills, writing skills and preparation tips for tests and exams.

Tutors at all centres and sub-centres meet with students every week for an hour or two to assist students in alleviating their learning difficulties. In some locations where such services are not readily available, volunteer counselling stimulates confidence and the commitment of students. The study centres also foster interactions amongst students to discuss academic and other matters of interest in a peer-supported context.

Pre-registration support is provided through the OC's Headquarters and study centres, and addresses the aims and objectives of courses, selection of subjects, scope of various strands, admission tests, fees and so on. Potential students are advised of the expectations around their involvement in weekly study periods, tutorials, assignments, and examinations. They are also advised about the need for discipline and time management and for a change of attitude and adjustment of family and social life.

Headquarters and study centres respond to queries and provide support for registration, course variations, withdrawals and fee refunds. Headquarters issues student results, transcripts and certificates. A help desk has been established to address student queries and problems. A student Grievances Committee is also being set up to help resolve such issues expediently.

Use of information and communication technology (ICT)

The OC model for distance education suggests delivering learning resources in print and in online, disc and CD-ROM form to the students via the study centres. However, as a first step towards online delivery, a computer laboratory and network service was established at each of the five open campuses with an understanding that these facilities would be extended to other centres incrementally. The proposed system was supposed to reduce the traditional extensive local tutorial support currently provided with print-based teaching and learning. The model encourages limited provision of audiovisual equipment in the university centres as this encourages face-to-face teaching (Meacham 2001). As some courses may use videotapes as part of this learning process, these will be accessed through a computer monitor, and video may also be converted to CD-ROMs.

Currently, print is the media chosen for CTCS course development and delivery. This is supplemented by audiocassette and video for some courses. The goal of delivering courses through online support to a large group of geographically dispersed, remote and isolated students, using a fragile national and local telecommunication infrastructure, is extremely difficult.

The OC has mastered desktop publishing in order to use technology for preparing style manuals and formatting course materials. The system has been automated to assist in the production of course materials.

Course assessment results are compiled using simple software on a spreadsheet platform. Internal assessment results compiled at study centres are transmitted to the OC's Headquarters electronically. Headquarters then adds final exam scores and processes results.

Challenges

The OC maintains student records using the university student record database that was developed for on-campus students. The system is not capable of adding new features to accommodate distance learning needs. Preference is given to the on-campus students in inputting data, which usually delays the production of class lists, academic transcripts and student statistics by the university database. The OC prepares its class lists and statistics using spreadsheets in order to meet the immediate needs. The challenge is to develop a system to cater for both on-campus and distance learners.

The OC's model of ODL suggests the use of ICT for enhancing pedagogic practices, accessing information, improving communication with course co-ordinators, and generally strengthening operations and management. As demonstrated by the unsatisfactory role played by regional computer laboratories, infrastructure and technical know-how remains an obstacle towards the effective use of ICT for ODL in Papua New Guinea. Both the government and the university must recognise the importance of ICT in the educational sector and must invest in capacity-building for ICT-enabled education.

As in the conventional schooling system, about 80% of CTCS students do not have access to computer and network facilities, and OC has been unable to invest heavily in order to provide access to such facilities at study centres. Access to computer facilities will remain a challenge for a long time.

Wide-area network between main and open campuses is connected with a narrow bandwidth of 64-K landline. This network system is not only unreliable, but also very slow in data trafficking.

Staff development and training

Since its establishment, the OC made staff development a priority, but the initial focus was to build technical capacity for course materials development and delivery. Instructional designers, desktop publishers and course writers were trained. Emphasis was placed on on-the-job training under supervision of specialists rather than on the conventional face-to-face training method. Staff received regular training on management and operation of the study centres mainly through workshops. The training of the tutors is conducted face to face at regional strategic locations.

The importance of training for the OC during the embryonic stage of its development did not flow to its management and support staff because of a lack of funds and a lack of

locally available training. External funding supported initial training. While a separate budget for training was proposed for 2008, it amounts to less than 1% of the total budget.

The OC has developed a comprehensive staff development policy and plans. Although these fall within the university staff development policy framework, they differ in that they emphasise study and training through the distance mode – and preferably online. The training schedule relates study and training to individual career paths. The university budgetary policy must reverse the low priority given to OC staff development and training if the university is to achieve management efficiency and effectiveness.

Challenges

Staff development has been neglected mainly because of a lack of funding, but also because of the emphasis placed on achieving financial stability by increasing programmes and student enrolment. Most of the staff are highly qualified and committed, but they lack knowledge and skills on ODL. There is a need for continuous upgrading of knowledge and skills, particularly as the ODL mechanism is changing very fast, especially insofar as technology is concerned. The income from OC fees should be spent on staff development rather than diverted to shortfalls in other areas in the university.

Quality control

The OC recognises that it should demonstrate strong quality assurance processes for its courses in order to remain competitive in the market and to establish ODL as an alternative to increasing access to education.

The OC's quality assurance policy focuses on the following areas:

- system design – the development of an institutional integrated approach and quality leadership for the sustainable development of ODL;
- establishment of academic standards and quality in programme design, learning materials and choice of pedagogy;
- assurance of quality and standards in the management of programme delivery;
- student development and support; and
- student assessment

The establishment of the OC and development of the CTCS programme are part of an explicit strategy in the University Strategic Plan (UPNG 2001) and of a commitment to the higher authority of the university. The ODL model was developed and articulated by internal stakeholders. During the early stage of its development, the CTCS programme suffered a setback when the academic schools decided to disown a pre-tertiary programme and the University Senate decided to abolish it. The checks and balances in the decision-making process, combined with strong leadership, helped the Senate rescind its earlier decision and the OC became solely responsible for the CTCS programme.

The system processes and procedures for the operation and management of the development and delivery of courses are recorded in the *Open College Operational Manual*. Among other aspects, the manual includes clearly defined processes, tasks and roles of individuals and their connectivity.

The involvement of a panel of experts, subject specialists and stakeholders assures the quality of the programme to fit its purpose. The system involves reference groups, both internal and external, to ensure the programme serves the interests of the target groups

and is appropriate for the learning process. The system requires the approval of the OC Standing Committee as well as the university-level committee, thereby ensuring the quality of programmes and courses. Periodical review of the programme is an integral part of the process of assuring relevance and high standards.

Course development involves subject specialists, instructional designers and media experts. The process requires attendance by course writers at intensive training sessions to ensure that they understand the needs of distance learners. The course development manual, as well as the style manual, sets the techniques, procedures and process for developing and reviewing materials. Materials developed are subject to third-party review before being finalised. Course materials production and distribution are closely monitored to ensure flawless and timely delivery of materials to students.

Quality assurance in programme delivery management ensures the quality of student admission through properly conducted tests. Currently, there is no mechanism to monitor the conduct of admission tests and the marking of test papers. Directors and their staff are trained to conduct orientation programmes and to provide appropriate information for course selection. Since the OC emphasises the appointment of quality tutors and monitors their performance, the system is able to ensure the provision of good learning opportunities, thereby giving the students a fair and reasonable chance of achieving academic standards.

As the first point of contact, campus and centre Directors are explicitly responsible for ensuring student support services and promoting autonomous learning so that students take responsibility for their own development.

Quality assurance requires the changing of assignments in each semester, with appropriate marking guides for the markers/tutors to mark the assignments. Moderating marked assignments and providing appropriate feedback to students has not been successful because of inadequate supervisory academic staff. However, the marking of final examinations by the markers appointed by the OC's Headquarters, and its proportionately higher weighting than for internal assignment, has added much credibility to the programme and to the reliability of its certification.

Challenges

The current mechanism is inadequate to monitor and evaluate systems, processes, and procedures for the continuous improvement of the programme, course development and delivery. It is important to develop capacity in conducting research and collecting and compiling information to monitor and appraise the friendliness and effectiveness of services that are made available to students. Most importantly, it is necessary to develop a set of performance indicators that are measurable and readily available for preparing performance reports.

The OC quality assurance policy was not designed and then implemented. Rather, it evolved along with the development of the institution because of the absence of a university-wide comprehensive quality assurance policy. Quality assurance at the OC refers to the initiatives that were introduced with the development of systems, processes and procedures, as well as those resulting from emerging needs. The challenge, then, is to remain committed to quality assurance and to maintain the momentum of continuous improvement at all operational levels in what is a low-committed university-wide quality assurance environment. The future development of the OC depends on the quality of its leadership in supporting the consolidation of achievements and undertaking initiatives for innovation and development. A related challenge is to ensure quality leadership at all levels of the university management directly and indirectly related to the ODL.

The centralised marking of final exam papers of all students in all courses ensures the quality and uniformity in assessing students. Finding qualified markers to mark a large number of exam papers within two weeks so as to facilitate further processing and dissemination of exam results represents a considerable challenge. Further increases in enrolment will require the decentralisation of exam paper marking to regional campuses, which in turn will pose another challenge for maintaining quality.

Cost-efficiency, sustainability and scalability

Cost – The identification of cost per distance learning student in a dual-mode institution is difficult because of difficulties in separating the cost of providing direct and indirect support to ODL students by various academic and service units. Poor record-keeping of expenditures is another concern for determining accurate cost per student.

Notwithstanding these difficulties, unit cost per CTCS student can be estimated at approximately K1,300 (US$481.00). A student unit in CTCS is equivalent to eight units of a semester of courses each year. A study on the unit cost calculation for the conventional secondary school system (grades 8–12) showed a unit cost of K2,229.19 (US$824.80) – or almost twice as much as for the equivalent CTCS unit (AusAID 2003). Moreover, the unit cost for an upper secondary student would be higher because of the higher staff:student ratio and the higher costs for goods and services than for the lower level of secondary education system. The same study identified K520.00 (US$192.40) as the unit cost per distance education (correspondence) student in the lower secondary level (based on four units of year-long courses as the full load of a student).

Efficiency – It is evident from the above that in respect to unit cost per student, the OC is more cost-efficient than the conventional school system in Papua New Guinea. Further review of systems and tightening up of operations would reduce spillage of resources and further improve efficiency. Gradual use of ICT will increase costs in the short-run, but contribute to reduced unit costs in the long-run (as will greater economies of scale resulting from increases in enrolment).

Sustainability – Today's rapid enrolment growth and higher income over expenditure demonstrate the financial sustainability of the CTCS programme. The long-term sustainability depends on these aspects as well as on the ability of the OC to diversify programmes to meet the changing needs of the target groups. Also important is extending networking and partnership to strengthen the clientele base.

Scalability – The OC adapted an incremental approach for its scale of operation. It is gradually expanding its network through the establishment of open campuses at strategic regional locations and a cluster of university centres at all provincial headquarters. It is now expanding its coverage by establishing study centres at district levels and as franchise study centres with educational institutions, as well as by working with NGOs to reach the unreached. It will gradually take advantage of technology to achieve high scalability in its delivery system and management.

CONCLUSION: IMPLICATIONS FOR PUBLIC POLICY AND STRATEGIC PLANNING

In Papua New Guinea, the population growth (2.6%), literacy rate (45%) and high under-15-year-old demographic (45%) will continue to put enormous pressure on the formal education system. The education reform that aims to increase access to education

is expanding, but the rate of increase at upper secondary level is not adequate to accommodate current out-of-school children or to catch up with population growth rates. Access to education, especially in remote locations, will remain an ongoing agenda for the country's education administrators and policy-makers. There is strong evidence that the OC can reap the benefit of economies of scale and deliver pre-tertiary education at a much lower cost than can be done through conventional schooling. Many initiatives have recognised the need for ODL in increasing access to, and promoting, non-formal education – for example, the Medium Term Development Strategy (Department of National Planning and Monitoring 2004), the National Higher Education Plan (Office of the Higher Education 2002), and the National Education Plan (National Department of Education 2004). However, recognition on paper is yet to be translated into material support through adequate budgetary provision. National government leaders, policy-makers and administrators should consider the potential of the OC, develop a national development framework for it, and institutionalise financial support through the National Annual Budgetary system.

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CHAPTER 10

CASE STUDY: VANCOUVER LEARNING NETWORK (SECONDARY), BRITISH COLUMBIA, CANADA

Cindy Gauthier

ABSTRACT

The Vancouver Learning Network (VLN) is one of the largest distributed learning programmes in the province of British Columbia, Canada. The programme provides kindergarten (K) to grade 12 public education through a range of correspondence and online approaches. In 2007/08, the programme enrolled the equivalent of approximately 1,200 full-time students. About 95% of enrolments are secondary 8–12 and some 5% are elementary K–7. Enrolment by headcount in secondary is just under 8,000 students.

The VLN originally opened as the Greater Vancouver Regional Correspondence School in 1990. It was one of nine schools providing correspondence education to a primarily urban region in British Columbia. As technology was introduced, the methods of course delivery began to change. The school was renamed the Greater Vancouver Distance Education School in 1996, as the delivery of education was no longer limited to correspondence. The name of the school was changed for a third time in 2007 to reflect a shift away from education defined by geography to one defined by connectedness and distributed learning pedagogy.

In this case study, the current secondary programme (8–12) is reviewed. The VLN has experienced exponential growth in the past two years. This has resulted in numerous administrative challenges as well as far-reaching educational impacts. The VLN is an organisation that has sustained and improved quality of learning during rapid growth. The scalability of the organisation is clearly evident. Sustainability of the organisation continues to be of greatest concern for future planning and viability in a competitive environment.

BACKGROUND

Institutional profile

The Vancouver Learning Network (VLN)[1] is a secondary programme of the Vancouver Board of Education in British Columbia. The secondary programme operates out of John Oliver Secondary School, one of the large district high schools centrally located in the city of Vancouver.

The Vancouver Board of Education serves the largest urban centre of the province. The majority of students enrolled at the VLN live in the Greater Vancouver regional area and approximately half of the students served live within the Vancouver Board of Education school catchment. As one of more than 50 distributed learning programmes or schools that currently exist in British Columbia, and which together serve about 49,000 learners (or 16,000 full-time-equivalents), the VLN is one of only a few programmes that registers students from anywhere in the provincial territory (as opposed to exclusively serving a population defined by the host school district mandate). Whereas distributed learning programmes in British Columbia do not have district boundaries, many have nevertheless organised themselves around a local focus.

The majority of students at the VLN are known as "cross-enrolled" students. This means that they are registered in a traditional school, but also choose to take one or more courses online through the Vancouver Learning Network. The recent tremendous enrolment growth is in cross-enrolled students online. The school also provides full-time studies for students who do not wish to attend a traditional school, and this population remains stable yet small (estimated to be around 10% of enrolments). These students frequently take a blend of online and correspondence courses. Adults can also access the VLN in order to complete their schooling, and these students represent about 15% of the full-time equivalent enrolment.

Correspondence courses are available to all students but have experienced marked decline with the introduction of online options.

National context

In Canada, education is a provincial responsibility and is funded by the provincial governments. In distributed learning in British Columbia, registration is not open to students who reside in other parts of Canada or who are foreign/international students. Any student who can demonstrate ordinary residency in British Columbia is eligible for registration.[2] If the student is a Canadian Citizen or Permanent Resident, he or she is a fundable student. For students who are not Canadian Citizens or Permanent Residents, their registrations are not fundable, but the students may register for courses and pay tuition as long as they are able to demonstrate that they are currently authorised to live in British Columbia.

Open and distance learning, with its origins in correspondence study, is well established throughout Canada both at the school level and in tertiary education. With the advent of online learning and the integration of technology into traditional school environments, open schooling (OS) is gaining in credibility, even if some conventional educators continue to resist its expansion.

1. VLN school Web site is at http://vln.vsb.bc.ca/
2. Distributed Learning BC residency policy is outlined at www.bced.gov.bc.ca/policy/policies/dist_ed_ residency.htm

The high level of connectivity in Canada has resulted in the majority of British Columbia families having Internet access from home, and the many hours that the average secondary student spends online for recreational purposes means that they have gained a familiarity with the medium that is readily exploitable for educational purposes.

Legal and regulatory framework

All public schools in British Columbia are governed by the School Act.[3] This is the overarching legal and regulatory framework. Additionally, the Ministry of Education has a Distributed Learning Agreement that must be signed annually by a board of education operating a distributed learning school. The regulations of the Distributed Learning Agreement outline specific requirements of distributed learning delivery and work in concert with a set of Distributed Learning Standards that guide the instructional practices in distributed learning.[4]

Teachers in British Columbia must belong to the BC College of Teachers, an organisation that regulates teacher qualifications. The BC Teachers' Federation (BCTF), the provincial union of teachers, is supported by union locals in all school districts. This organisation advocates for teachers and students, and lobbies the government to address educational issues. Distributed learning is a topic of great interest with the BCTF because of the tremendous impact that distributed learning is having on traditional schools throughout the province. Additionally, the BCTF is concerned about the working conditions of teachers, because no contract language for teachers has been negotiated with respect to distributed learning.

Governance

The BC Ministry of Education is responsible for public schools in British Columbia. Within the ministry, the Distributed Learning Unit deals specifically with the Distributed Learning schools to ensure the terms of the Distributed Learning Agreement and Distributed Learning Standards are upheld. The Distributed Learning Unit was recently renamed the E-Learning Unit. The evolution of the division within the ministry – from Correspondence Branch to Distributed Learning Unit to the new E-Learning unit – reflects the movement in the past decade from print to online, as well as pedagogical shifts in teaching and learning using technology.

The Vancouver Board of Education is responsible for the educational delivery provided by the Vancouver Learning Network, just as it is responsible for all other schools in the district. This would be the case for other boards of education that have a distributed learning school in their district. In administering the VLN, the Vancouver Board of Education follows standard practice and timelines in terms of budget, human resources, policies and procedures. Because of the unique nature of distributed learning, additional processes have been developed by the district to track enrolments, funding, achievement, unique budgetary items, and staffing. The VLN must meet not only the same accountability requirements as any other school in the district, but also Ministry of Education requirements. This means that distributed learning schools in the province currently face a greater degree of accountability than do schools in the traditional system. Much of the reason for this is the relatively new development of online learning and its rapid growth in British Columbia education. The Vancouver Board of Education is also

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3. An Internet copy of the BC School Act is available at www.qp.gov.bc.ca/statreg/stat/s/96412_00.htm
4. See District Agreement and Standards links at www.bced.gov.bc.ca/dist_learning/vision.htm

proactive in determining the direction of distributed learning within the district, moving in tandem with the Ministry of Education to develop and integrate distributed learning within the province's educational system.

Challenges

One of the greatest challenges in governance is the result of the decentralised education structure in British Columbia. Boards of education are responsible for the distributed learning schools and these boards have a great deal of local control over individual school funding, hiring practices and educational delivery. While this leads to a wide range of options and programme variety in distributed learning, it also results in differences in programme quality and the interpretation of standards. Another challenge is the outcome of the VLN entering the mainstream practice within the school district. The unique nature and requirements of OS must always be considered in budget, staffing and other matters. This frequently requires rethinking or adjustment of existing practice.

Organisational model and culture

The VLN is organised as a district programme within a competitive provincial model. In many respects, the programme functions much like any other secondary school within the district. The programme is currently in the division of the board known as Continuing and International Education. The Associate Superintendent of this division is responsible for VLN and all distributed learning within the district. Currently, distributed learning is only provided through the VLN for elementary and secondary.

The VLN is managed by an administrative team consisting of a Principal and Vice Principal. A core staff of continuing teachers is employed at the start of every year, with additional temporary teachers hired during the year as enrolments require. The majority of the teaching staff are full-time. The core teaching staff is currently balanced by a similar number of support staff personnel and a group of contracted correspondence teacher-markers who are employed off-site for the purposes of evaluation. The continuing staff of VLN is approximately 40 staff: one-third are full-time teachers, one-third are support staff and one-third are contracted teacher-markers. In traditional schools, the number of continuing teachers beginning the year is considerably higher and few teachers would be hired throughout the year. Markers are not employed at all by the traditional system. The ratio of support staff assigned to the VLN is four to five times greater than that assigned to traditional schools, because of OS's considerable data and information management requirements.

The VLN K–7 programme operates out of an elementary school facility. It remains largely a structured print correspondence programme with online supplemental activities. The K–7 culture is marginally integrated with the host elementary school. A large number of students are from families who are temporarily absent from Canada. Many of the distributed learning programmes in British Columbia serve the K–9 population.

By contrast, the 8–12 programmes provide a wide range of fully online courses. Parallel correspondence courses remain available in core course offerings. The VLN's secondary level (8–12) operates out of a secondary school facility, but functions independently from the host high school.

The 8–12 culture is largely cross-enrolled school-aged – that is, students supplementing regular school with online courses. A core of full-time students will remain enrolled at the VLN, as well as adult students seeking graduation, upgrading or lifelong learning.

As online learning becomes more accepted and understood, the integration of OS with traditional secondary schools is certain, initially in the form of blended programme options and moving over time to become an embedded educational choice for all teachers and students. The majority of cross-enrolled students at the VLN are creating the means for this integration to occur.

Funding model

Funding for distributed learning is provided to the Board of Education by the BC Ministry of Education. Funding for OS was made equivalent to other public education options in 2005, but distributed learning programmes followed course-based funding for grades 10–12 (one course being equal to one-eigth of a full-time-equivalent). Traditional schools were historically funded from K–12 by full programme or full-time-equivalency per student. Since September 2007, traditional schools have also been funded by course for grades 10–12. This final funding change standardised the funding model of all schools, including open schools. All funding is enrolment-driven and the money is allocated by the Ministry of Education to the local Board of Education operating budget. A board of education has full control of the revenues and allocates necessary funds to schools for budgeted operations. Currently, the revenues generated by huge enrolments at the VLN are offsetting district revenue losses because of declining enrolment and rising expenses in the mainstream system.

In distributed learning, three funding periods are observed, whereas the funding for the traditional system is received once at the start of the school year. This funding model addresses the continual influx of students throughout the year and provides the necessary contingency funds to hire teachers and purchase necessary resources to support these students. Funding for correspondence courses and online courses is the same. The VLN obtains a small amount of funding through tuition fees, but strict rules apply to charging fees for all schools, so this revenue is minimal. In British Columbia, school fees may not be charged to students for any programme or activity that is part of a required programme of studies. The VLN is able to charge refundable deposits for the loan of materials only.

All K–9 students are funded by programme and grade, and require a developed Student Learning Plan (essentially, a programme plan at the grade level) and parental consent. All students in grades 10–12 are now funded by course. In distributed learning schools, funding is not provided until the student becomes active in the course and a Student Learning Plan has been completed. A Student Learning Plan is a document that shows how the course chosen fits into the larger educational plan. It also includes a proposed timeline for course completion. Although completion rates are not a factor in funding, they are tracked to measure student success rates and achievement. Adult students, even if they have graduated from high school, may take secondary courses but those are funded on a separate adult student funding model that is approximately 70% of the funding amount provided for school-age students. Adult funding is not a large or dependable source of revenue for the VLN. Adult students often face numerous challenges in following through with both starting and completing courses because of other life commitments.

Student success rate

This is one of the most important areas of focus and in need of improvement. Historically, distributed learning schools had a very low student success rate as the traditional correspondence model did not provide much in the way of student support for learning.

Success rates in correspondence were estimated for years to be in the neighbourhood of approximately 20%.

Data collection in distributed learning is in the early stages. The first set of summative annual data with some measure of consistency for distributed learning was collected by the Ministry of Education in 2006/07, establishing a starting point of investigation. Because of policy changes and irregularities in information systems, the data showed a real range of success rates across the schools. The data for VLN in 2007 indicates that K–7 achieved a success rate of approximately 85%. The VLN data for 8–12 is considerably more complex to collect and interpret as a result of significant challenges in data management within the information and communication technologies (ICTs) used to manage student information. The course success rate was identified as approximately 68% for 2006/07. Within this data, the statistics for correspondence are included with online completions. The completion rate for online courses would appear to be higher than completion in correspondence. Many factors may contribute to the difference such as the type of student who seeks correspondence, the isolation of the correspondence learner, and the limited support provided to correspondence learners.

Other variations can be found in the achievement data. For example, the 2007 online summer programme students had a completion rate of approximately 78%, well above the overall average for the annual period. In 2008, it is expected that completion rates at the VLN will show improvement, a result partly of improvements in instructional practice and partly of the implementation of systems to ensure reliability of data.

In addition to the summative process of data collection to determine success rates, formative processes are used to examine trends and inform practice. For example, tracking the number of students who register and the time that it takes for students to become active provides insight into success rates. This data supports the notion that students who do not start soon after registration, or start and stop mid-course, are less likely to be successful.

Challenges

Measuring student success rates in a continuous enrolment, 12-month programme leads to data that is only accurate on the day it is extracted. However, trends over time can still be observed with the aggregation of data. Differing information management practices from school to school may also lead to inaccurate programme results and comparisons.

KEY FEATURES OF VLN'S SECONDARY PROGRAMME, GRADES 8–12

Target audience and curriculum

Distributed learning in British Columbia has gone through a major transition in the past two decades. In its original form as correspondence education, it is almost a century old. Correspondence was established to provide education to students who were unable to attend school because of geographic isolation. In the past decade, technology has changed the way in which these students can be reached. Although correspondence education is still available and needed for those without access to technology, the evolution and shift resulting from widespread adoption of the Internet and technology has led to a greater emphasis in distributed and online learning. Furthermore, the potential of these technologies to transform educational practice as a whole is certainly recognised by the

current government. Active engagement of learners increases student participation and helps to address the issues of motivation and poor completion that often arise for learners in isolation. Educational policy changes over the past 5–10 years have enabled distributed learning to lead the way in educational reform.

This has played out in significant ways at the school level. Where the VLN was once a standard regional correspondence school, it has become one of the largest online secondary schools in the province. Moreover, the current population is predominantly cross-enrolled, attending bricks-and-mortar schools. This is fundamentally different from early distributed learning education. Today's integrated model of distributed learning is regarded as a form of flexibility and choice, and is being widely adopted by the population. As a result, the VLN has experienced tremendous enrolment growth in the past two years. Most enrolments are in grades 10–12 and are open because of new ministry policies around choice, tuition-free education and the sharing of student programmes.

Given that the curriculum of distributed learning is parallel to the curriculum provided in traditional schools, accreditation is standard and governed by the ministry at large. The VLN, as a provincial model, has the ability to offer a wide range of courses to students where schools may otherwise not be able to provide these learning experiences. As an example, the VLN is the sole provider of online Mandarin, Korean, Japanese and Italian languages in British Columbia. The provision of new online courses is also attracting additional adult learners seeking to upgrade knowledge and technology skills or to engage in lifelong learning.

Challenges

Distributed learning is still viewed by the educational field at large as a great unknown. A mismatch in what key stakeholders believe is offered and what actually exists is apparent in the poor choices made in the early stages by students, as well as the resistance of educators in supporting distributed learning choices.

With the recent changes to educational policy that mandate student flexibility and choice, considerable systemic disruption is occurring in the traditional school model. This impact will likely stimulate significant educational reform in British Columbia education. As the largest distributed learning provider in secondary education in the province, the VLN is a significant player in educational change. However, it is also a lightning rod for that which has been staged by the provincial educational authority.

Degree of openness

In British Columbia, a very high degree of openness exists in distributed learning. Much of this is the result of the removal of enrolment barriers for students (particularly at the grade 10–12 course level), allowing students to register without the permission of a home school and without incurring tuition at any distributed learning school in British Columbia.

Some limitations exist at the institutional level and these reflect both the broader educational culture and historical practice in the mainstream. For example, course start and completion times are often driven by external deadlines such as post-secondary entry, graduation timelines, scheduled provincial examinations and terms of teacher contracts.

Students enrolling at the VLN for correspondence courses may enroll at any time and complete at any time within one year after that. This is the continuous enrolment model

that originated from traditional correspondence delivery. Within this model, students work entirely at their own pace, scheduling exams as needed. These courses are supported by the teacher-markers who are employed on a 12-month contract and paid for services rendered on demand.

Students enrolling at the VLN for online courses enroll in one of two self-paced cohorts: a fall session or a summer session. The fall session parallels the traditional school schedule, running from September to June. Students may register at any time, but must complete all coursework by June. Summer session students are in an intense, but self-paced cohort that runs July to August. This cohort has advanced entry, but closes for registration once it begins because the session is only six weeks long. Exams for online students are offered on demand, but large cohort exams are also required at various times (e.g., final exams in June or August).

Students who fail or drop out are permitted to re-enrol, but funding cannot be claimed twice unless a period of six months has elapsed since the course was started and discontinued.

With respect to curriculum, moderate openness exists relating to learner-centred approaches. The ministry restricts use of completely open and individualised curriculum, but greatly supports learner-centred delivery within a framework built on core learning objectives and outcomes. Principles of learning and engagement are encouraged and consistent with regular school practices. A variety of assessment and evaluation strategies is encouraged, and multiple modalities are employed in instructional practices. With an emphasis on meeting individual needs, student services and instructional engagement, the VLN successfully serves a very diverse population of students.

Challenges

The cohort model of online delivery is driven by two significant factors: the established school calendar in the traditional schools and the Collective Agreement of Teachers in British Columbia. As students choose to blend their traditional school courses with distributed learning, the VLN has found it necessary to synchronise with traditional school calendars in order to expedite reporting, post-secondary applications, and programme planning for students. Teachers in British Columbia work on 10-month contracts, with July and August as vacation. Staffing a continuous enrolment model presents a problem within the contract if online programmes require teachers to work outside of required terms. For this reason, the summer session at the VLN is an optional teaching assignment, filled by interested and qualified teaching staff from around the district.

Curriculum development and production model

All courses offered by the VLN are regulated provincially by Ministry Instruction Resources Plans (IRP) and locally by board-authorised courses. At the VLN, school-level course selection is based on the provision of core requirements derived from student demand. Informal needs assessment is conducted and "niche courses" (specialty courses that may have little or no availability in other schools) are developed online to provide greater choice for students.

A significant educational shift away from correspondence to online has occurred in the past decade, most notably in the last three years. The ministry is no longer funding improvements in correspondence courses, but continues to fund this form of delivery at the student level. It remains as a choice for students, although the trends seem to indicate

that, when given the choice, the majority of students will choose online learning over correspondence.

At the VLN, online courses are developed by the assigned distributed learning teachers. A course team approach is used to create consistency in instructional practice and to produce the best selection of supporting resources.

Correspondence courses are largely purchased from the original provincial course development organisation, Open School BC.[5] Correspondence is distributed to registered students who return completed work and are supported by correspondence teachers working remotely. Course content is largely static at the local level because of the nature of print and the pre-packaged format. The course materials are copyrighted, but still available to purchase without course registration for home learners, classroom teachers and others.

Online courses are dynamic by design. Content is under continual revision and change, which promotes engagement, relevance and authentic work for both teachers and learners. Online courses are offered through an online learning management system (Desire2Learn[6]), and access to the virtual classrooms is password-protected. Resources for online courses are either licensed or open source. For example, content for math courses or video-streaming clips for virtual science labs are elements the teacher will not produce, but will embed in course delivery. Most resources are online and within the developed course, although standard textbooks still accompany some subjects and are provided on loan for supplemental study and offline reading.

Challenges

In distributed learning initiatives, correspondence delivery is not being developmentally supported by the Ministry of Education. Historically, correspondence courses were written and provided to schools by a division of the ministry exclusively assigned to do this work. Most course development is now carried out at the district or school level and is targeted at online learning. This may lead to extinction of the formal correspondence option over time, in the sense that it will move from what once was a provincially developed, self-contained, standardised option to a locally developed teacher-instructed educational delivery option. This is already occurring at the VLN, where some correspondence options are being developed that parallel the online experience. These options are less content driven and therefore easier to develop and keep current under a teacher-led model.

This, however, requires a significant shift of paradigm from the original model of correspondence delivery. Correspondence delivery is a viable option and is fully eligible for funding by the Ministry of Education, but, in a market that is competitive, the greatest demand is for online learning and the focus is consequently on course development in this area.

Course delivery model

All courses at the VLN are delivered by certified teachers who are employees of the Vancouver Board of Education, as is the case for traditional schools in the district. Teachers hired for distributed learning are required to have qualifications and/or experience in teaching the curricular areas, as well as specific training in distributed

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5. The Open School BC Web site is at www.pss.gov.bc.ca/osbc/home.html

6. The Desire2Learn Web site is at www.desire2learn.com/

learning education. The latter training is largely handled through informal opportunities within the district, although formal experience and certification are considered an asset. Salaried (onsite) teachers are hired for online teaching. Contract (offsite) teachers are hired for correspondence marking.

Whereas correspondence uses text resources, print modules and supporting media, online courses are "resource thin." The online language courses use printed textbooks as required resources, and some optional textbooks and workbooks are offered in other online subjects. The distribution requirements of the online programme are minimal compared with the correspondence distribution requirements. This has changed the business practices in course delivery significantly.

Options for online synchronous and face-to-face sessions are available and encouraged, but not mandatory for students. Blended learning, where students work online in combination with face to face, is being adopted using customised approaches to retain the flexibility of the course delivery model while enhancing the learning experiences. All VLN students must write examinations in person at the VLN or at a designated, approved invigilation site. Regular examination sessions are held weekly throughout the year, with students signing up for an examination based on their readiness (that is, as they complete sections of course work).

The online programme has been built around existing and common technology (computer and Internet access) that is present in schools and in most homes in British Columbia. Provincial access and support are provided for all students in British Columbia by tutoring on LearnNowBC, the Ministry of Education Web site for distributed learning.

Challenges

At the VLN, management of teacher workloads is a unique, demanding and continuous process. In an asynchronous, self-paced, continuous enrolment programme, students must be continually tracked by administration to ensure proper distribution of teacher workloads. The practice of assigning loads varies from that found in a traditional secondary school. Unlike traditional school classrooms, distributed learning does not have class-size limits. Nonetheless, to overload a teacher with online students quickly erodes the quality of instruction provided to students. Currently, the Vancouver Board of Education supports equal load assignments for all teachers in the district, distributed learning teachers included, because the terms outlined in the Teachers' Collective Agreement (concerning, for example, hours of work, rate of pay and working conditions) apply to all teachers.

The VLN follows an organic course development model where teachers create most of what is offered online while courses are in progress. However, it is important that course development responsibilities not be allowed to compromise teacher workloads and thus the quality of student learning. It is unclear what the optimum teacher/student ratio is as many factors – pedagogical approaches, curricular demands and programme approaches – impact workloads. Retaining flexibility in teacher loads is a prerequisite for successful course development and delivery.

Learner assessment

Learners at the VLN are assessed in a variety of ways, with multiple assessment strategies embedded at the course level (e.g., through quizzes, mid-terms, portfolio assessments). Considerable autonomy exists at the school level and, to some extent, within individual courses offered by teachers.

- Summative evaluation occurs at the course level, but is not standardised. Teams of teachers co-operate on the development of exams and on revisions in subject areas with multiple class sections.
- Summative evaluation at the ministry level occurs in selected core courses only.
- Formative evaluation is used in pre-testing, post-testing, student exit surveys and student satisfaction surveys (a ministry requirement).

Because face-to-face exams are required, a process is in place where students may write exams in an alternative, pre-approved location. This service is necessary for VLN as many students live too far away from the school to attend. Additionally, students with special learning needs often require special circumstances for exam writing that may include a separate setting, additional time or some other adaptation outlined in their Individual Education Plan (IEP). An IEP is required for all special education students in British Columbia, and students enrolled in distributed learning courses must also be provided with appropriate accommodations matched to their learning needs.

Challenges

In an online environment, the greatest challenge is ensuring authenticity of student work. It is a common area of criticism and concern raised by mainstream educators when discussing OS. As in the traditional classrooms, teachers at the VLN use a variety of assessment and communication strategies to help them recognise the personal style of student writing. The teachers also watch for inconsistencies in work. They use a licensed service as well as Internet search engines to check student submissions that may have been copied from other student work or the Internet. The requirement of exams written in person also ensures student competencies in subject areas. These steps are essential in establishing and preserving the credibility of the programme in the context of other educational options.

Learner support services

In addition to the course-assigned teachers, registered students have access to a qualified teacher-counsellor who can provide student counselling, programme advisement, post-secondary assistance and liaison with the student's former or current school of record. Services are available face to face, by telephone or online. The school counsellors are required to support the Student Learning Plan (SLP) that all distributed learning students must complete upon registration. Counsellors regularly contact students, parents and other educational institutions assigned to their caseload concerning ongoing progress of the VLN students. The counsellors' role is instrumental in communications to stakeholder groups.

Special Education support is provided by a resource teacher to ministry-designated students and to students who are referred with learning difficulties. This teacher works in co-operation with the course teachers to ensure curriculum is adapted or modified as per ministry requirements. District Speech Language Pathologists and Educational Psychologists may be accessed, as well as formal assessment services. The resource teacher works with the course teacher to determine appropriate course adaptations based on the student Individual Education Plan.

Online tutoring is available through LearnNowBC in selected subjects. Students register at the Web site and contracted teachers are available during scheduled times to assist any student attending a school in British Columbia. Course teachers provide additional support to students through a variety of methods. For technical support, optional

orientation sessions were offered, but students seem to prefer the individualised and convenient access to the VLN Help Desk, which is a direct telephone line to a technician during school hours. Teachers also provide support to their students wherever possible, particularly when the problem relates to course activity and not to user account issues.

In British Columbia, Parent Advisory Councils (PACs) encourage parent involvement and input in schools. The PACs are organised at the school district level[7] as well as the provincial level, providing a network of parents, information and advocacy. The VLN administration is frequently invited to attend PAC meetings of other schools to provide parents with correct and current information about distributed learning. As many parents today are typically behind their children in terms of understanding and adopting technology, they are often uncertain and wary about the unknown options their children are choosing. At the school level, parents are ill-informed about alternative programme choices for students. The VLN seeks to involve parents in distributed learning. The success of many students in indirect instructional models comes from having parental support based on a working knowledge of course delivery, evaluation practices, course timelines and pacing options.

Challenges

As a result of the rapid growth in enrolment and changing pedagogical approaches, the VLN is currently in an overcrowded, inadequate facility. For the programme to continue to develop and improve in providing active, engaged learning and support of the learners, the VLN requires a facility that is able to accommodate students and teachers in a flexible fashion. The current office-style facility was developed for regional correspondence delivery and lacks the multipurpose educational spaces and technical infrastructure now required. The facility is being reviewed by the Board of Education. This is an extreme situation that limits the programme from providing essential services to students. A facility decision by the Board of Education is imminent.

One-on-one tutoring, small group tutorials, space for parent meetings, space for special education support, space to conduct synchronous online teaching sessions – these and other programme activities are currently limited by the facility. All of these learner support services will be greatly improved once the critical educational space issue is resolved.

Use of ICTs

Information and communication technologies (ICTs) are used in the VLN in four main ways:

- *in provincial network and Ministry of Education applications* – The ministry's Provincial Learning Network[8] connects all schools in British Columbia via an intranet as well as the Internet. The network also uses common applications for the regular collection of funding and achievement data.

- *in the district administration suite of applications* – As part of the district administration, the Vancouver Board of Education provides Internet, e-mail services, Web site and portal features. It also provides management systems for school administration, including personnel and finance. Currently, multiple applications are required, but many of the former processes are being migrated into a central district portal for ease of access.

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7. For more information, see www.vsb.bc.ca/parentsfamilies/DPAC/default.htm
8. The Provincial Learning Network Web site is www.bced.gov.bc.ca/plnet/

- *for district and school information systems* – The VLN is currently using a system that is inconsistent with that of other district schools. Until this year, the school had to manage information in two systems in order to support a viable registration process. The Ministry of Education is moving to one common system for all schools to improve the quality of information and reduce duplications. The information system, known as BCeSIS,[9] will replace all earlier systems. The ministry has had to address the continuous enrolment requirements of distributed learning schools. In consultation with district and distributed learning stakeholder groups, the system is currently being developed to accommodate all distributed learning requirements. The transition to this system has begun in Vancouver and is being piloted with a small cohort of students at the VLN. However, full migration to BCeSIS will not occur until the Continuous Entry Learning (CEL) module has been completed in the coming year.

- *by the district/school learning management system (Desire2Learn)* – The Vancouver Board of Education, in conjunction with the VLN, has licensed Desire2Learn for the learning management system used to deliver online courses through distributed learning. Although this system is primarily used for online course delivery, it also handles key elements of online registration, marks, assignments, communications and records of progress.

Challenges

Behind the educational programme, the labour-intensity of multiple ICTs and the inability of various data systems to "talk" to each other results in considerable duplication and manual work on the part of support staff. With the move of the VLN to the common student information system, these demands will be significantly reduced. However, it will be a few years until the ICTs of data management are effectively repurposed or streamlined and before a meaningful reduction of these current demands is realised.

The systems that the VLN is required to use from the ministry and the district are not prohibitive to distributed learning. For the most part, the problems that exist with these systems are experienced by all schools. One critical area pertains to the closed nature of the district network. The policies that the district has in place to restrict aspects of Internet access by schools negatively affects the ability of the VLN to work flexibly with online students. For example, students are able to access Web information and tools from home that their teachers cannot access at school. This is a constant challenge for teachers doing their daily work.

District infrastructure issues, related to the physical facility, are also problematic, but will be resolved when facility improvements occur.

Staff training and development

Staff training and development at the VLN is largely under the jurisdiction of the district – in this case, the Vancouver Board of Education. Teacher contracts have language that ensures all teachers will receive five days of professional development (Pro-D) planned at the school level. Pro-D sessions are developed locally by a school committee. Additionally, numerous optional Pro-D workshops are offered at the district level for teachers, although many of the topics covered in Pro-D offerings by the district are not relevant to distributed learning teachers.

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9. For more information on BCeSIS, see www.isw-bc.ca/csi/node.do?method=home

Teachers in distributed learning have a significant need to engage with other distributed learning teachers around the province, particularly as best practices are emerging and evolving. Sharing strategies and knowledge is very important in this field. Distributed learning teachers may require more attendance at out-of-district conferences than a traditional classroom teacher does. Attending conferences is very costly, so participation is limited to selected representatives who share knowledge with peers upon return.

Training of support staff is largely in-house, unless an initiative has been introduced at the district level that affects all support personnel. For example, the new student information system will be district wide, and the district will provide all the training to support personnel as schools migrate to the new system. This will not be a cost to the school.

Considerable "grassroots" and in-house staff development occurs. This does not impact the budget, but instead uses staff time internally. A mentoring model is very strong in the organisation. Teachers train new teachers and, in doing so, pick up new ideas as well. Support staff train new office staff. School staff also frequently engage in scheduled information sessions that focus on topics of relevance to participants.

A formal training programme for teaching in distributed learning has not been developed by the district, but programmes are offered by various post-secondary institutions. The ministry is encouraging the development of educators in distributed learning and acknowledges the unique skill sets required to teach in a mediated environment. Professional development activities are under development by LearnNowBC to support teachers new to distributed learning.

Challenges

The VLN has a dedicated training and development budget, but, because the budget is provided by the Vancouver Board of Education and funded on the same basis as for regular schools, it does not allow for the unique development needs of OS staff. These needs include ongoing course development training for teachers, training of support staff and non-teaching staff in a variety of systems and processes, and wide participation in provincial conferences with other distributed learning educators.

While the VLN has a significantly larger operating budget than most schools, the amount allocated for professional and staff development has not increased proportionally. As a result of a limited funding model, the formal professional development budget is approximately 1% of the total operating budget – far too little with which to provide opportunities to network with other distributed learning educators, even if additional funds were harnessed from other areas within the budget wherever possible.

Quality control

Quality control in distributed learning is of great importance. In the early adoption of new delivery systems and the ability of all districts in British Columbia to become involved, quality varied considerably from programme to programme. Although the gap is closing, there is still a need for some direction since this is a relatively new initiative in the greater context of educational delivery.

In response to this recognised need, the Ministry of Education has developed Distributed Learning Standards.[10] These have been incorporated into the Distributed Learning

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10. See District Agreement and Standards links at www.bced.gov.bc.ca/dist_learning/vision.htm

Agreement that school districts must sign in order to offer a distributed learning programme. A quality review process has also been implemented to ensure that schools and districts are meeting the standards. As with compliance audits, distributed learning schools will be randomly selected for the quality review process each year. The quality control process meets, and quite possibly exceeds, the one that is in place for traditional schools in British Columbia.

At the VLN, instructional design follows guidelines to govern how courses are presented, and best practice guidelines are continually incorporated to create the highest quality of student learning and engagement. These areas are not overly prescriptive. Teachers have autonomy to create an online presence that is their own. However, consistency and best practice are encouraged and coached with all teachers. This is done by keeping constant focus on improving student learning and interactivity through professional development and in-service opportunities, both formally and informally. Team building and sharing is ongoing and a part of the culture of VLN teachers.

Challenges

Distributed learning in British Columbia is moving from a compliance emphasis (regulation of policy and delivery by schools) to a quality emphasis. Given the criticism and resistance that naturally exist in any climate of reform, considerable pressure is on schools such as the VLN to ensure that learning experiences meet or exceed face-to-face teaching environments. Great attention must be paid to ensuring the authenticity of student work whenever technology is employed. Just as important is developing instructional and course developmental practices that ensure the learning experiences and content do not become static.

All programmes and all forms of delivery in distance education – whether print correspondence, online or a blend of the two – must meet the same quality standards. This is a particularly significant challenge in the traditional correspondence model because the content is not being revised as frequently as needed and the "marker" model was not designed to encourage a great deal of interactivity between teachers and students.

Cost, efficiency, sustainability and scalability

It is a difficult but vital task to identify the cost per student in distributed learning and to determine where and why variances exist. For example, compared with those at the province's traditional schools, per-student/facility costs at VLN are approximately four times greater in the area of support staff (clerical and technical), but as much as 10 times *less* in the area of facilities. Yet staff salaries, which account for most of the expenses in the VLN budget, are proportionally equivalent to traditional school budgets.

In spite of variances, early indications suggest the cost per student in distributed learning is comparable to the cost per traditional classroom student where the same quality of instructional delivery and support is provided. If teacher instruction and student support are not provided (that is, through the removal of salaried teachers from the model), correspondence delivery is considerably less expensive. However, a model lacking engagement and support is no longer acceptable practice in British Columbia education.

Because of ministry policy that encourages a model where districts must compete for distributed learning students, sustainability is a critical issue at the local level. Distributed learning is stable and experiencing growth at the provincial level, but trends are erratic at the local level. Where some programmes, like those of the VLN, have experienced extraordinary growth, others are facing extinction because of reduced revenues.

Sustainability is largely determined by the ability of a programme to meet student needs in a social context and to predict and develop a viable marketing strategy.

The VLN is a strong example of scalability and success. Scalability requires parallel mapping of resources to ensure that benchmarks are met and that growth does not result in an erosion of quality. New models of budgeting and staffing must be developed in order to deliver on these resources in a continuous enrolment environment.

The elements of cost, efficiency, sustainability and scalability are core considerations for any open school model. In a competitive educational environment, the management of these elements translates directly into funding and whether or not a programme will survive. Even in the absence of competition, these elements remain fundamental to planning, accountability and the meeting of educational goals within the organisation.

Challenges

The aspect of efficiency presents significant challenges at the VLN because of multiple ICTs and a very large student enrolment. Both a reduction in the number of systems used and migration to common systems will improve the massive amount of work associated with managing thousands of students. This aspect is still in transition.

Communication of accurate information to stakeholders, as well as the collection of enrolment, budgetary and achievement data, is necessary if a real view of distributed learning activity, its costs and its effectiveness is to be constructed. Although early data is still being collected and remains somewhat unreliable, it is important to have because it enables VLN to study trends and establish benchmarks for improvement.

CONCLUSION: IMPLICATIONS FOR PUBLIC POLICY AND STRATEGIC PLANNING

Senior administrators and senior policy-makers would benefit from observing the following set of recommendations:

- *Focus on learning* – In the evolution of OS, it is important to develop a programme based on best educational practice in order to provide the highest quality of student learning. A common pitfall is to build learning around available technology. While ICT limitations must certainly be considered in planning (e.g., lack of Internet availability, lack of computers), it is an error to allow available technology to define educational programmes. Technology must be a consideration in OS but must not drive the educational decision-making.

- *Engage in dynamic, strategic planning with stakeholders* – Strategic planning must be wary of re-purposing old practice as this may ultimately limit sustainability and growth of the programme over time. It is important to continually examine aspects of the programme that are ineffective and adjust them accordingly. This is particularly critical when moving from a print-based model to an online, technologically supported model. Inclusion of stakeholder groups – educators, parents, students, teachers – encourages acceptance and ownership of OS as a viable part of education.

- *Develop a responsive model* – An organisation that includes stakeholders in the process of determining needs and interests will be better aligned to context. Feedback provides opportunities for correction and refinement of the model. It is this responsiveness within the organisational structure that also leads to adaptability and the effective management of change and trends.

- *Emphasise communications* – During times of rapid or significant change, communication in all stages of planning, implementation and delivery is critical in managing efficiencies. Accurate information must be available to ensure that processes are consistently followed, avoid confusion, and avoid fractured or misguided outcomes. Communication allows the vision and plan to move forward in a climate of understanding and support.

- *Work towards a balanced, integrated model* – In OS, consideration should be given to an integrated model where common practice, common standards, centralisation of the business framework and decentralisation of instruction are the key elements. This creates a balance between openness and structure, from policy levels to delivery levels, and leads to a consistent, sustainable, learner-centred option capable of growth and adaptability.

Part IV:
Conclusion

CHAPTER 11

THE BRIGHT BUT CHALLENGING FUTURE OF OPEN SCHOOLING

Frances Ferreira

INTRODUCTION

We have highlighted the huge challenge that many countries, regardless of their geographic location or stage of economic or social development, face in meeting the demand for secondary education. Practitioners and (to a more limited extent) researchers have for some years been drawing attention to the fact that open schools can assist countries in addressing the tremendous unmet needs for secondary education, using a variety of ways depending on regional circumstances. In short, open schools can represent a key part of the solution for increasing access to quality secondary schooling.

At the same time, experience on the ground and our involvement in promoting open schooling have reinforced the concern that there is a paucity of documented evidence not only to advance the open schooling (OS) agenda, but also to counter the prejudices and misconceptions about OS that prevail amongst key stakeholders and policy-makers in education.

This publication, through the special theme chapters and the case studies, has sought to provide critical missing information pertinent to the different issues impacting OS. This information will assist and guide policy-makers who are considering establishing or upgrading open schools. The contributions of educationists who have first-hand experience in OS confirms the tenet that open schools can provide quality secondary education on condition that senior policy-makers, bureaucrats and administrators are well informed about the key factors that impact success in OS, and use this knowledge base to strategise, plan, implement and monitor their own OS initiatives.

ISSUES FACING THE PROVIDERS OF SECONDARY EDUCATION

In the introductory chapter, the following issues facing secondary education providers were identified:

- increasing the breadth and equality of access to secondary education;
- ensuring that the curriculum provided to secondary school learners is relevant to the needs of their various constituencies;
- improving the quality of teaching and learning; and
- maximising the cost-effectiveness, cost-efficiency and sustainability of educational systems.

In conclusion, this chapter looks at how the different case studies contribute to a fuller understanding of these issues, and what answers the case studies provide in addressing them. Finally, this chapter brings together the relevant recommendations as highlighted throughout this publication.

Increasing the breadth and equality of access

The case studies confirm that where traditional schools cannot respond to the high demand for education, open schools can be a key strategy for increasing volume of access, and can do so moderately (South Australia's OAC), significantly (BOCODOL, UPNG, VLN) or dramatically (NAMCOL, NIOS). In this regard, open schools can also be considered as complementary or as an alternative to the conventional schools – that is, they can seek to provide: another means for youths to access the same curriculum; another way for youths to access alternative curriculum; or an access path for adults to access a non-traditional or traditional curriculum.

Moreover, Du Vivier and Ellis make the case (in Chapter 2) that allowing cross-enrolment (that is, simultaneous enrolment in conventional schooling and OS) will alleviate the burden on conventional schools and allow them to better respond to demand. The Canadian example makes it clear that such an approach is possible, as most of the VLN students are in fact cross-enrolled.

Whereas the VLN favours a centralised system that depends on technology to increase volume and diversify the curriculum, open schools such as BOCODOL, NAMCOL and NIOS complement their primarily print-based course materials with decentralised student support. Cognizant of the fact that secondary school students require more support than university-level distance learners, these open schools increase access by relying on an extensive network of study centres where learners are supported on a regular basis through contact sessions.

Although these institutions can, in principle, increase the number of school-going children and thus play a major role in the national development agenda, there are also severe limitations to the institutions' ability to intervene. In some developing countries, huge numbers of school-age children and adults are still denied access for various reasons. The most significant reasons are restrictions resulting from an institution's ability to finance and keep current study materials and the wide range of student services critical to a learner's success in open secondary schooling.

Two of our institutions (NIOS and UPNG-OC) are responding to this challenge by charging tuition fees that are significantly higher than in the conventional system, but they warn of the negative impact that this may have on continuing to grow their clientele.

Our review has also demonstrated that the appropriate exploitation of information and communication technology (ICT) for administrative or pedagogical purposes can contribute to improving access in several ways, notably by:

- lowering variable (enrolment-driven) costs;
- providing a more cost-effective student support model; and
- attracting learners who were less interested in older distance-learning models.

Three related warnings, however, reverberate throughout the chapters.

1. In some countries the use of student-centred ICT can decrease rather than increase access. It is therefore important that ICT be introduced progressively by building public and private sector partnerships and by maximising the roll-out of computers and Internet access in conventional schools.

2. While ICT provides many opportunities for OS to expand educational opportunities, in reality ICTs should not be seen simply as quick, easy and cost-effective responses to a variety of issues and challenges.

3. Improving access through the use of ICT can only work economically if the ICT is used to replace, not add to, conventional learning models.

The case studies also provide the opportunity to reflect on the relationship between increased access and degree of openness. Unlike the tertiary sector where "open university" often means an absence of academic admission criteria, only one of our institutions (UPNG-OC) falls into this category. Predictably it is also the only institution that exclusively recruits adults (albeit predominantly young adults) and provides them with an entirely alternative curriculum. Our other open schools are not much more open (if at all) in this regard than their conventional counterparts, sometimes as a result of internal policies and sometimes because of regulations established by an external examination body. However, given the very successful share of secondary enrolments that our institutions boast, one can conclude that open admission is important in OS only when the targeted audience and curriculum are alternative, rather than complementary, to those of the conventional system.

Such is not the case insofar as openness in regulations or curriculum selection is concerned, though again external entities such as examination bodies or departments of education can place restrictions on open schools – just as school boards or similar bodies can do in cases where the open school has minimal institutional autonomy of the strategic kind. Thus, it is not coincidental that NIOS, the largest open school in the world, is not only the most autonomous of our case studies but also the most open in terms of academic regulations (e.g., time to completion, examination-sitting options, self-pacing) and alternative vocational curriculum.

Finally, open schools are not concerned just with increasing access to secondary school, but also with equalising the educational opportunities for citizens regardless of their geographic location or socio-economic background. All open schools in the case studies have successfully addressed the issue of removing geographic barriers to secondary education, though success in reaching the socially and economically disadvantaged is less clear-cut and more difficult to measure. What is evident, nevertheless, is that in all but one case study (South Australia's OAC), government has failed to recognise that serving the disadvantaged learner requires greater emphasis on support services, and hence a larger financial investment, than supporting the more advantaged student.

The ability of open schools to be advocates for the socially and economically disadvantaged is further compromised in several cases by their need to charge user fees (e.g., for tuition

or study materials) in order to compensate for significantly lower government grants than their conventional schooling counterparts receive (the latter, ironically, are responsible for educating more advantaged students). On a more positive note, however, VLN and OAC demonstrate how developments in the field of technology are enabling them to start addressing the needs of the medically disadvantaged – a phenomenon that will greatly assist the others in meeting similar ends once the technology infrastructure permits it.

Ensuring that the curriculum provided to secondary school learners is relevant to the needs of their various constituencies

Given the huge number of out-of-school children at the secondary level, we are conscious that expanding access to education through increased enrolments will provide part of the solution. Accommodating significantly larger numbers of secondary school learners, however, also results in increased pressure on governments to redefine the way in which secondary education can address societal needs through the diversification of the curriculum. Developing and implementing such a strategy will ensure that the needs both of the target groups and of national development are met.

Critical to achieving these goals is the availability of not only academic but also technical and vocational programming. According to the UNESCO Education for All (EFA) global monitoring report, 2009, the percentage of technical and vocational education enrolments in secondary education accounts for only 6% in Sub-Saharan Africa, and so the report calls for more investment in such subjects. The report also states that young adults and out-of-school youth are very interested in skills acquisition and that technical and vocational subjects are highly favoured by them. A close look at the open schools studied in this publication reveals not only that they are achieving significant accomplishments in this regard, but that they have tremendous potential in this regard.

The UPNG places a very high emphasis on developing relevant curriculum and continuously strives to meet the learning needs of its diverse range of students. The university's curriculum includes a combination of vocational and academic courses that prepares students through skills-based courses for the world of work or of further studies, thereby directly meeting both student and societal needs. The NIOS has the advantage of huge numbers through which it can achieve economies of scale. It has thus been able to offer a wide range of vocational subjects and sees further expansion of vocational curriculum as strategically important. The OAC offers the same curriculum as the conventional schools do, including vocational subjects, but it has the advantage (as does the VLN) of using OS models to offer more vocational schooling than would be possible through more conventional approaches. In Namibia, despite the recognised need to diversify the curriculum to meet the training needs in the country, NAMCOL's government funding model has not allowed it to make much progress in this regard.

Our case studies also draw attention to the fact that distance education institutions and their students are often challenged when offering or taking subjects with a practical component. For open schools to be successful in these initiatives, it is critical that they find a partner or some other means of making provision for the practical component of the courses. It therefore comes as no surprise that the OAC finds it challenging to meet its obligations in offering the practical component. The longer open schools continue to work in isolation instead of as an integral partner in the education arena, the more formidable this challenge will remain.

Diversifying the curriculum and making it more relevant to the needs of learners can also be achieved by applying new ICTs to the learning model. The VLN, for example,

increasingly offers its curriculum both in a print-based distance education format and online, allowing learners to select their preferred mode of study. According to the VLN, the online model is attracting many new adult learners who seek to upgrade their knowledge and technology skills or engage in lifelong learning through this medium, something they would not be doing otherwise. In the developing world, however, online learning may not yet be a feasible alternative for providing sustainable education to economically disadvantaged learners, and our case studies demonstrate the hurdles and problems faced in attempting to use new technological solutions as a key means of curriculum expansion.

The majority of institutions and learners in many parts of the developing world simply do not have access to, or can afford, computers. This does not mean that the problem is insurmountable. The authors of the special theme chapter on ICT (Chapter 3) conclude that the biggest challenge affecting organisations that seek to employ ICT in OS is having a solid plan and still remaining responsive to these constant innovations. It is not "all or nothing," and our less advantaged open schools are also finding incremental ways to expand or improve their curriculum through the application of new ICTs.

Solid planning cannot be transformed into solid achievements without proper finances. The special theme chapter on the financing of open schools (Chapter 4) emphasises that to maintain their academic credibility and cater to minority interests, most institutions have to offer a range of courses. However, the author confirms that an expanded curriculum has important cost implications: more courses will require an increased level of initial investment in their development, and greater annual expenditure to maintain and replace them.

Since the provision of technical and vocational subjects represents, for many countries, a national challenge, success depends on collaboration amongst the different stakeholders. This is all the more true in OS. The Namibia case study (Chapter 6) presents an excellent example of a national initiative where all the different publicly funded institutions share their resources to enhance the development and delivery of their courses. In Australia, the college has an agreement with workplaces to assess the practical components of vocational subjects on site. Collaborations such as these are important, possible and necessary to sustain through policy directives.

Improving the quality of teaching and learning

What is our understanding of quality? The introductory chapter (Chapter 1) summarises a variety of aspects that impact quality in OS. Issues range from curriculum relevance, personalised academic support, assessment, learning materials and their presentation, access to administrative functioning and the appropriate use of ICTs. Considering all the different case studies presented in this publication, there is no doubt that each of the institutions places a high premium on the development of quality criteria and the adherence to those in the different areas. The sense of pride in the quality of the education being provided comes through in all of these chapters. This is a very positive development and very motivational. According to some of the institutions in the case studies, their material is regarded as being of high quality and is even used in the conventional classroom to enhance the quality of conventional teaching.

Since quality is a major concern for policy-makers, it should be reassuring that open schools can offer the same or better quality than their conventional school counterparts.

Of significance is Namibia and Botswana's common quality assurance criteria, which they use to conduct quality assurance audits of each other's work. This is a milestone for

open schools: not only does it provide transparency, but it gives the assurance that both institutions are prepared to be learning institutions. Quality is therefore seen as a process. Through constant reflection on issues related to materials, learner support services, and administrative support services, the quality of teaching and learning can be improved. Nevertheless, the NAMCOL case study (Chapter 6) reveals that quality assurance is a complex process given that it is not a fixed set of criteria but a process built on reflection, organisational realities and evaluation. This is a very important observation as distance education is dynamic, and constant reflection and improvement are key strategies to ensuring quality in all the different areas.

Also noteworthy is the British Columbia Ministry of Education's development of Distributed Learning Standards. These standards are incorporated into the Distributed Learning Agreement that must be signed by each school district offering distributed learning. Annually, a random selection from among the different distributed learning programmes is made for quality review purposes. That policy-makers have taken the initiative to inculcate a quality culture amongst its distributed learning providers is very important and well worth emulating in other OS jurisdictions. It also attests to one of the advantages of having an open school policy – namely that, as stated by Du Vivier and Ellis in Chapter 2, it can contribute to the formulation of minimum standards of service delivery and assuring that open schools adhere to them.

Australia, where OS has maximised the use of ICT, serves as an example of how ICT can enhance the quality of teaching (Chapter 8). Through the use of alternative media, the OAC adds value to its print-based materials by addressing specific areas of the curriculum identified in examiners' reports as being challenging to learners. Supplementing this are net-meetings where, through whiteboards, video and audio, students find themselves in a real-time classroom situation.

While we agree that one of the major benefits of ICT is its ability to enhance the quality of education, Gauthier of the Vancouver Learning Network (Chapter 10) advises that, in the evolution of OS, it is important to develop a programme based on best educational practice in order to provide the highest quality of student learning. A common pitfall is to build learning around available technology. Limitations must certainly be considered in planning (e.g., lack of Internet availability, lack of computers), yet it is an error to allow available technology to define educational programmes. Technology must be a consideration in OS, but it must not drive the educational decision-making.

Teachers and staff members at open schools play a critical role in the quality of teaching. However, while most teachers are qualified for teaching in conventional schools, they are not qualified for the distance education mode. It is therefore essential that time and money be set aside to train teachers and that the commitment to do this be lodged in policy. Unfortunately, as the case studies have shown, open schools are on their own in confronting this challenge. Increasing the quality of learning and teaching requires achieving national development goals, which in turn requires that policy-makers be involved. The highly mixed ability of open schools to adequately address teacher and staff training suggests that where no clear guidelines exist in policy documents, open schools will not be able to solve this challenge on their own.

Notwithstanding this concern, when one considers the overall quality assurance measures in place in our case studies, one can state that quality control processes in OS often meet, and in some cases exceed, the processes in place for traditional schools.

Maximising the cost-effectiveness, cost-efficiency and sustainability of educational systems

Key to the achievement of sustainability is operating with cost-effectiveness and cost-efficiency. Sustainability requires that proper plans be in place and that planning, in turn, be aided through enabling policy. Du Vivier and Ellis highlight the importance of this in Chapter 2, pointing out that a well-articulated policy offers many advantages, including:

- creating a broad consensus on the most appropriate direction for the future development of the open school;

- contributing to minimum standards of service delivery and assuring that the open school's programmes adhere to these; and

- heading off duplication and overlap while facilitating the planning for joint initiatives that maximise the value obtained from limited state funding.

Our case studies reveal that, notwithstanding the variety in funding formulas, the origin of the basis of the funding is often difficult to ascertain. Failure by policy-makers to clearly record how and why a particular open school is funded places the school at risk by leaving its future funding more susceptible to the vagaries of school jurisdictions, government officials and politicians. It is also important that funding for open schools take into consideration all the different dimensions that impact on the cost of an open school, including the very different allocation of fixed and variable costs. When this understanding is absent – or worse, ignored – it puts at risk the viability of an otherwise highly successful OS model. A case in point is the UPNG-OC, where minimal autonomy from its UPNG parent authority results in the open school's annual surpluses being redirected to non-OS priorities instead of being reinvested in the open school (e.g., in the revision or expansion of curriculum).

Failure to fine-tune funding models so that they take into account key differences between OS and conventional schooling models may also result in inappropriate cost-effective comparisons across the models. For example, while most governments from our case studies provide funding for OS according to enrolment data, funding through-put receives little attention. Several of our institutions have high incomplete, withdrawal, or non-presentation at examination rates, factors that ought to (but are not) taken into account in government funding formulae. If open schools are not held accountable for through-put, perceptions about their quality may be affected, as might their very sustainability.

The second major critical issue that relates to minimising cost is the introduction of ICT. Technology has the ability to bring down the unit cost of education. Provided that student enrolments are high enough to warrant the initial investment, ICT shifts some of the teaching from the human support aspect (e.g., teachers and tutors) to the medium. Each technology has its own cost structure. As Rumble notes in Chapter 4, the flexible element in ICT costs is driven by different factors – number of students, number of student courses, ratio of tutors to students, proportion of assignments returned for correction, and size of tutorial group. However, when it comes to infrastructure costs, Haughey and Stewart in Chapter 3 emphasise that there is no single answer to the question of what a reasonable online education infrastructure costs. They therefore advocate for a framework that can yield a useable range of estimates to assist the planning process.

Rumble reminds us in Chapter 4 of a study in which the cost of ICT is linked to the global cost structure – something that is not necessarily favourable to developing

countries and that means that the comparative cost of face-to-face instruction may be substantially lower than the technological alternative (Orivel 2000). There are alternatives where institutions can use open source. However, although this removes a major cost element of an ICT infrastructure, Haughey and Stewart advise us in Chapter 3 that it may also substitute new cost elements. The two authors add that the impact of content choice on the network bandwidth is another critical issue that is often ignored. In fact, bandwidth requirement may be the largest constraint on the design and delivery of course content.

Despite all the challenges faced by open schools, our case studies show that open schools can be cost-effective and cost-efficient while delivering quality services. However, a repeated concern is that the majority of our studied open schools do not have enough funds to provide for all the services they envision. One should be careful that under-funding does not lead to under-performance, poor productivity, and eventually the failure of what was intended as a brilliant solution.

It is an often-heard myth that OS and distance education is, by definition, cheaper than conventional education. This is not always true, but as Rumble puts it in his chapter on the cost of open schools, we know enough about what makes distance education more or less expensive to be able to control costs. In the same vein, we know that when we design open schools properly, we can deliver a good quality education.

RECOMMENDATIONS FOR OPEN SCHOOLING

Jurisdictional policy

1. Open schools can play a major role in providing access to education. It is important that policy-makers include ODL in their core planning for education. The status of open schools should be clearly defined in the national/jurisdictional policy and proper planning should ensure that funding is provided from government through a well-designed funding formula.

2. Policy-makers must ensure that an enabling policy is in place before starting an open school. Chapter 2 on enabling policy offers excellent advice in this regard.

3. Given the implications for all aspects of OS (clientele, curriculum, pedagogy, administrative procedures, costs), the appropriate decision-making body (government, board or institution) should enshrine institutional flexibility and openness in policies.

Governance

4. On the whole, open schools that have remained part of a civil/public service structure do not do very well. The traditional school system involves high degrees of management, protracted decision-making processes and convoluted procurement procedures. Thus, the more autonomy an open school has, the better.

5. Good governance can be assured through the appointment of an independent management committee or board with substantive powers to approve plans, review budgets, and ensure that accounts are properly audited. Accountability to government, parliament and the public in general is usually achieved through the publication of annual reports and statistical digests.

6. Institutional accountability relies on complete, accurate and transparent institutional data. Governments, governing bodies and institutions must insist on its availability and appropriate use.

7. ODL institutions in general, and open schools in particular, must be given the autonomy and flexibility to adapt their operations to changing conditions and emerging technologies so that they can continue to provide efficient and effective services

Funding

8. Funding should be subject to a performance agreement between government and the institution's board.

9. The substitution of capital (in the form of educational materials delivered through a range of technologies) for labour in the classroom is likely to bring the cost per student down as long as: the materials are used for a number of years before they are withdrawn from use; the materials are used extensively (i.e., a significant number of pupils or students use the materials); and the capital and delivery costs of the technology are kept low.

10. Open schooling has the capacity to cater to small groups of learners with special needs. Policy-makers should make additional funding available to ensure that the educational needs of special groups are met through tailor-made programmes.

11. Technical and vocational education and training (VET) should receive funding according to the same principles as do the academic secondary education programmes funded by government.

12. Given that open schools cater to disadvantaged populations in the majority of cases, governments should consider granting bursaries to learners who cannot afford to pay for their tuition.

ICT

13. Policy issues are complex and should not be developed in isolation from larger government reform initiatives in sectors besides education. At the same time, ICT policy development in education must be coherent within the sector so that the underlying infrastructure is scalable and flexible. Policy development will occur at several levels: nationally, in government and in education; and within the secondary sector, specifically as it relates to OS initiatives. Policy regulation must be monitored so that these links can be maintained and the policy landscape kept consistent.

14. In developing ICT policy for OS, it is important to address a similar range of issues that speak first to the overall purposes of OS and use of ICT in educational provision, and then, at a more direct level, to the target population, type of system chosen, business plan, system management, and monitoring and quality assurance.

15. An effective architecture for remote areas where wired power and network may be unavailable is to use relay towers that are powered by solar or wind energy. Supported by a battery to keep continuous service, they allow mesh communities to relay to each other. By employing this technology, remote areas can have full access to the networked environment in a very cost- and time-effective manner.

16. Because equipment wears out technologically and electronically, evergreening (planned replacement) is essential to maintain orderly and effective operation.

Curriculum

17. Whether an open school's curriculum should complement or be an alternative to that of the conventional schooling system needs to be established in policy.

18. Through open schools, the offering of Technical and Vocational Education and Training programmes at secondary level can make an important contribution to the creation of sustainable livelihoods of many young people.

19. School curricula are relatively stable and materials, once developed, can be used for several years. However, major curriculum reform is inevitable over time, and triggers significant redevelopment costs. Such costs should therefore be built into budgets as a capital costs.

Open and conventional schooling

20. Every country in the world is struggling to improve the quality of its education system, and the paper, audiovisual and electronic resources produced by open schools have potential to enhance the quality of classroom-based teaching. Providing such materials to learners in conventional schools is likely to reduce the unit costs of production and raise the status of the open school that supplies them.

21. Some countries are now achieving economies and greater efficiency by blending ODL and conventional teaching methods. Schools may not be able to offer certain subjects because they lack qualified teachers or it is too expensive to arrange classes for small groups of learners. However, allowing or encouraging conventional learners to enrol with an OS institution to study these subjects enables smaller schools and schools in more remote areas to provide a flexible curriculum

22. Open schools employ classroom teachers on a part-time or contract basis to tutor, write materials, mark assignments and do other work. These additional duties are a matter of concern for school authorities who, understandably, want to ensure that learners in the classroom receive a teacher's full attention. Ensuring that teachers receive permission to carry out part-time work for an open school and that classroom facilities are made available for use outside of regular school hours require policy directives from government.

Course development and delivery

23. To minimise development and production costs, open schools should consider entering into collaborative arrangements with publishers or forming co-operatives.

24. The provision of technical and vocational course subjects represents, for many countries, a national challenge. Success in delivering the practical components depends on collaboration amongst the different stakeholders.

25. Policy-makers can play an important role by ensuring that an enabling policy environment facilitates the planning of joint initiatives such as material development and course delivery to maximise the value obtained from limited state funding.

26. Printed text and radio/audio delivery remain relatively inexpensive per pupil, while video and computing costs continue to be more expensive. Thus, interactive radio instruction (IRI) remains a highly attractive option (from a cost point of view) when compared with video, computing and face-to-face delivery options.

Staff training and development

27. Open schooling is not a game for amateurs. The levels of investment required are too high, the technologies used too sophisticated, and the decisions taken too risky for mediocre management. Managers capable of producing results at that level come at an unavoidable cost, as such expertise is a scarce resource. Key staff members need to receive professional training in ODL.

28. ODL institutions require different ways of orienting, teaching and motivating learners. Practitioners of ODL must have access to professional development, and budgets should provide for this.

29. Exchanges, partnerships or peer-learning programmes, as well as links with international associations, are mechanisms to enhance staff's capacity.

30. Policy-makers should take advantage of the Commonwealth of Learning's commitment to assist countries in strengthening the capacity of staff working in open schools in all the areas pertaining to ODL.

Student support services

31. To ensure effective student support, an open school should have a vibrant learning management system that enables students to access: their course materials and their tutor; the examinations system that manages the examinations process; and student support systems such as the library.

32. Learners in open schools need regular face-to-face contact, which inevitably increases the cost of delivery. Where possible, labour-intensive student support can be substituted by affordable and accessible technology.

33. To minimise the costs of providing student support, one strategy is to share the limited ODL expertise and resources amongst ODL institutions – for example, by sharing study centres and computer laboratories in remote areas.

Quality control

34. The competency to develop educational standards in a country rests within the nation's ministry of education. It is imperative that provision for the development, implementation, monitoring and evaluation of distance education standards be made at a government level.

35. Institutions and governments seeking to establish benchmarks for quality provision and to devise effective systems for the review and evaluation of ODL programmes should consult the Commonwealth of Learning's Quality Assurance resources (see www.col.org). The site provides a single, convenient access point to existing resources in quality assurance in ODL.

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