Increasing access to university education through distance learning in Zambia: the role of ICT

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Introduction

The original charter given to the University of Zambia was that the institution would be responsive to the real needs of the country. One of the urgent needs was the development of high-level human resources in a country that had an acute shortage of human resources at independence in 1964. This mandate derives from the Report of the Lockwood Commission,[1] which led to the establishment of the University in 1966. The report recommended the incorporation of distance education into the academic activities of the institution.

The new university was therefore designed to serve as a dual mode institution that would offer identical courses to full-time and distance students. The establishment of a distance education system at the university was mainly to serve the dual purpose of contributing to the development of high-level human resources in the country and meeting the educational needs of many capable adult Zambians who had missed the opportunity to benefit from university education because of the lack of facilities before the university was established.

The University of Zambia has substantially contributed to the development of human resources. Over 20 000 people have graduated from it since its inception (mainly from full-time programmes) in various specialisations at undergraduate and postgraduate levels. The distance education programme in particular, since its establishment in 1966, has opened access to university education for people who would otherwise have missed the opportunity completely.

However, the university as a whole, and the distance education programme in particular, has not achieved as much as it ought to have done in terms of its own objectives and in responding to national needs and the increasing demand for university education. This article describes the distance education programme, and discusses the problems affecting its development. It explains the need to

expand and strengthen the programme as a means of increasing access to university education. It focuses on the University of Zambia. (Copperbelt University, the other university, does not have a notable distance education programme.)

More importantly, the article describes the application of information and communication technologies (ICT) in the university's efforts to expand distance education and assesses the viability of ICT in terms of infrastructure development, accessibility, pedagogical and resource needs, staffing and staff training and management. Such an analysis is important because:

- The distance education programme was established on the assumption that the information and communication technologies would develop to the level that would adequately support the programme.
- The project is donor funded and was established without any comprehensive situation analysis. It therefore raises issues of sustainability after donor funding is no longer available.
- The University of Zambia's Strategic Plan stresses the need for and importance of ICT in distance education as a means of increasing access to university education.
- International trends and practices show the importance of ICT in increasing access to higher education. For example, Murphy et al[2] state that:

> Future applications (of ICT) are likely to reflect a greater convergence of the two goals: extending access and improving quality. At the tertiary level, for example, investments in ICTs are likely to afford the possibility of improving the quality of the teaching, learning, and research undertaken by 'dual mode' universities, while simultaneously offering the means of reaching learners in distant places.

It is therefore hoped that this article will provide lessons on what is possible in the application of ICT in distance education in a dual mode university in a developing country.

Programme description

The University of Zambia adopted its model of distance education from the University of New England, Australia, which is characterised by the integration of distance learning activities with the regular academic functions of teaching departments in the university. It is a dual structure in which curriculum development, all teaching and assessment are the responsibility of full-time

teaching staff in various departments that offer distance learning, while a separate administrative unit, the Directorate of Distance Education, is responsible for the overall coordination and administration of all distance learning courses.

Underlying this organisational structure is the principle of parity of standards between full-time and distance students, who have to meet the same admission requirements, follow the same curricula, and are offered identical courses by the same lecturers. This is intended to maximise equality of treatment and similarity of standards between the two categories of students.

The practical implication of this operational arrangement is that distance student enrolments are limited to a number that can adequately be given instruction by distance teaching and for which materials or teaching services are of such a nature that, in the opinion of the Senate, effective tuition can satisfactorily be provided by distance learning.

However, for many years the University of Zambia has been experiencing shortages of teaching staff, insufficient financial resources and inadequate printing facilities. These problems have led to a reduction in the programmes of study and range of courses available at a distance and, therefore, of distance student enrolments. For example, from 1979 to 1997 only the Bachelor of Arts (BA), the Bachelor of Arts with Education (BAEd) and the Diploma in Adult Education (DAE) were offered by distance learning.

In 1981 the Senate suspended all third- and fourth-year-level courses as a means of reducing distance learning courses to manageable levels within the constraints of the above problems. This means that, among other things, distance students cannot graduate without transferring to full-time study for their third- and fourth-year-level courses. This defeats the whole purpose of providing university education through the distance learning mode.

The university's decision to reduce the annual intake of distance students during the First Strategic Plan period (1994–1998) was equally significant. The plan noted that 'so that its present limited resources can be used more effectively, the University will temporarily restrict this programme to one hundred new students each year'.[3]

Consequently distance students enrolments declined by 49 per cent, from 614 in the 1993/94 academic year to 314 in the 1997/98 academic year.

The 1994–98 Strategic Plan also restricted full-time admissions, by limiting the first-year intake of full-time students to 800 each year. This was expected to reduce the enrolment of undergraduates from 3 900 to around 3 200 (18 per cent) at the end of the period in 1998. However, the pressure to increase access to university education was rapidly building up and was being widely recognised at national and institutional levels.

The university therefore decided to increase the student enrolment after the introduction of the ICT project at the end of 1997. In the 2000/2001 academic year the university offers distance learning courses contributing to six programmes of study whose enrolment figures in that year were as follows:

Programme		Enrolment
Bachelor of Arts	=	190
Bachelor of Arts with Library and Information Studies	=	22
Bachelor of Arts with Education	=	281
Bachelor of Education (Primary)	=	57
Bachelor of Education (Special Education)	=	28
Diploma in Adult Education	=	8
TOTAL	=	**586**

Of the distance students, about 84 per cent were male (492). Only 16 per cent (94) were female. Distance student enrolments increased to 878 in the 2001/2002 academic year (660 male and 218 female).

Increasing access

The Integrated Education Sector Investment Programme (ESIP) Policy Framework, which at the time sought to provide strategies to coordinate education and training activities undertaken by various government ministries, lamented the inadequacy of access to university education.[4] It noted that the country's two universities, the Copperbelt University and the University of Zambia, admitted fewer than 1 500 students each year. In addition, access to technical education and vocational training programmes was severely limited, reaching out to fewer than 2 500 people annually.[5] Similarly, the National Policy on Education noted that only about a quarter of the applicants to higher education institutions were admitted each year.[6]

In 2000 a total of 24 648 students were enrolled in tertiary institutions. The existence of only two universities in Zambia limits opportunities for university

education.[7] At the University of Zambia the proportion of students admitted during the period 1989 to 1999 ranged from 6 per cent to 22 per cent of the number of applicants. For example, in the 1994/1995 academic year, of 26 000 high-school leavers who were examined, 12 457 met the minimum requirements for admission to the university programmes. Of these, only 867 were admitted.

The Ministry of Education noted that 'current demand for tertiary education significantly exceeds supply and as a consequence has resulted in many students who meet the required admission standards being rejected'.[8]

In the larger part of the 1990s total student enrolments at the University of Zambia levelled off at an average of 4 800. This falls short of the 1975 projections that by the 1990s the university would have a total student enrolment of 8 000. The decline in the student intake is attributed to inadequate physical facilities and shortage of financial and human resources. It is noteworthy in this context that the total student enrolments at the two universities are below 8 000. However, total student enrolments at the two universities increased slightly in 2000 to 7 551 (5 516 at the University of Zambia and 2 035 at the Copperbelt University).

The need to increase access to higher education and the inability of the two universities and other higher education institutions to respond adequately to the increasing demand through full-time programmes necessitate the development and expansion of other modes of delivery. The National Policy on Education recognises that the human resource needs of the country require a wide diversity of third-level programmes and that this entails programme flexibility in terms of the curriculum and in the presentation structures.[9] The Ministry of Education Strategic Plan therefore aims, among other strategies, to 'increase access to basic, high school and tertiary education through open and distance modes of delivery'.[10]

Acknowledging the wide disparity between the numbers of individuals demanding entry into the university and those that are admitted, the University of Zambia's Strategic Plan: 2002–2006 states that the growing admission pressure poses special challenges which will call for more diverse delivery methods.[11] It therefore highlights the central role of distance education in achieving its objectives, particularly in the enhancement of equitable access to university education and in promoting life-long learning.

In this context some of the policy objectives of the University of Zambia's Strategic Plan are:

- To increase the distance student enrolment fourfold, from the present levels of about 500 to about 2 000 students
- To increase the number of course offerings so as to widen the choice of courses, and to provide opportunities for distance students to complete their degree and diploma courses entirely by distance learning
- To decentralise learner support systems by strengthening provincial centres
- To exploit the potential of information and communication technologies (ICT) to improve the development of course materials and the provision of learner support services.

Application of ICT

As far back as 1980 the Senate Ad Hoc Committee on Correspondence Studies highlighted the problems that have affected the development of distance education during the larger part of its history and recognised the catalytic role and importance of ICT in the development and management of any distance education system.[12]

Significantly, the University of Zambia's Strategic Plan: 2002–2006 highlights the importance of ICT in enhancing its capacity to provide increased access to its programmes as a means of promoting life-long learning. The plan observes that with the rapid development of information and communication technologies, life-long learning for all could be offered through, among other modes, open and distance learning systems.

At the end of 1996 the University of Zambia management submitted a proposal to the Flemish Inter-University Council of Belgium for an ICT distance education project, which was further discussed and refined at a meeting of donors in January 1997. The development of the project was to be anchored and facilitated by the university's computer network, known as the Computers for Academic, Management and Administrative Support (CAMAS) project developed in 1996.

The CAMAS project was designed to improve the academic facilities available to academics, students and researchers by providing a gateway to resources in the world of learning, and in general, through the new world-wide information network developing around the Internet.

Purpose of the ICT project

The use of ICT in distance education began in 1998 with the launch of the programme for Institutional University Cooperation between the Flemish Inter-University Council (VLIR) of Belgium and the University of Zambia (UNZA) (VLIR-UNZA IUC), which has several components, including UNZANET, computer studies, and food science and technology. Others are veterinary medicine, geology and inter-disciplinary research.

The ICT distance education project was designed to run from 1998 to 2002. Its goal is to improve the quality, socio-economic relevance, scope and accessibility of distance education programmes offered by the University of Zambia. The purpose is to build and strengthen the capacity of the Directorate of Distance Education to deliver its courses and support services to distance learners through the application of information and communication technologies.

Main activities

The goal and purposes of the project are being achieved through the following activities:

- Provision of hardware and software for the production of course materials and the general management and administration of the directorate
- Improvements to the directorate, including the provision of furniture, creation of office space, installation of lighting and security systems
- Provision of ICT equipment for the directorate and the regional/provincial centres
- Staff training
- Acquisition of library books
- Expansion of student record management system
- Creation of computer-based management information system.

Technical inputs

The project has provided a variety of equipment and software packages. The ICT infrastructure includes PC workstations with monitors, keyboards, mice and UPS units, a server, scanners, printers, modems, photocopiers and telephone lines (at provincial/regional centres). A variety of software packages have been acquired.

This ICT infrastructures is used for:

- course production at the directorate
- communication between the directorate and the provincial centres and vice-versa

- ICT services, such as e-mailing by staff and students, and scanning at provincial centres
- student and course record systems at the directorate
- the management information system at the directorate.

Intended outputs

The ICT project was established to solve some of the problems that have characterised the development of distance education at the institution since 1966 and to support the expansion of the distance education programme. Against this background the intended outputs of the project are improved infrastructure and systems for distance education, enhanced quality of distance education, increased number of distance learning programmes and courses and increased number of distance students.

Project management

The project is promoted by two experts: a Zambian distance education expert in the directorate and an ICT expert who is based at the Free University of Brussels, The two promoters are responsible for planning, management and monitoring of the project. This is done through visits to the University of Zambia and the Free University of Brussels and via e-mail.

The implementation of the project is executed at two levels: at the directorate in Lusaka and at provincial centres, each of which has a person responsible for operations at that level. The permanent Belgian expert (for two components of the VLIR-UNZA IUC programme: computer studies and distance education) is responsible for the functional management of the project in terms of acquisition and maintenance of hardware. Financial management is the responsibility of the deputy coordinator of the VLIR-UNZA IUC programme at the University of Zambia, who is also the permanent Belgian expert for computer studies and distance education.

The monitoring of the project is done on two levels. At project level the two promoters monitor the implementation of the project. The VLIR-UNZA IUC Steering Committee at the University of Zambia, chaired by the Zambian coordinator of the VLIR-UNZA IUC programme, monitors the performance of all components/projects of the IUC programme.

All the above logistical arrangements are intended to enhance the capacity of the directorate to increase enrolments dramatically and to manage that increase efficiently in a number of ways:

- The directorate can now process large numbers of student registration forms more quickly and accurately than before, because its staff have direct access to computers and the university registration system.
- Management of student records was essentially done manually and it became more difficult as student numbers increased. It is now easier to handle large numbers of students through the computer-based management information system (MIS) and database management system, including information processing for resource management and decision making.
- The new equipment, which includes copy printers and heavy-duty photocopiers, enhances the capacity of the directorate to produce large quantities of materials for large numbers of students more efficiently than in the past.
- The ICT enhances the capacity of the directorate to monitor the flow of assignments for large numbers of students as well as monitor their progress in terms of submission of assignments by using a specially designed computer-based monitoring system.

Assessment of the role of ICT

Various reports and documents related to the project and the report on the external evaluation of the whole VLIR-UNZA IUC programme provide sufficient information on the performance of the distance education project.[13]

Staff training

The implementation of any new project depends to a large extent on the availability of trained or qualified staff. It is significant to note that the project has been successful in human resource development. All categories of staff involved in distance education have been trained as follows:
- One member of staff completed an MSc in educational research in Belgium.
- One member of staff is registered on a PhD programme at the University of Zambia with joint supervision from a Belgian supervisor.
- Two members of staff are enrolled on Postgraduate Diplomas in Distance Education at the University of South Africa (UNISA) by distance learning;
- Fifteen members of staff (60 per cent of total establishment) have received training in computer skills and can now produce course materials on computers and manage computer-based student records; about five of them have received, or will soon receive, advanced training in computer usage to manage the expanded computer-based registration and record management systems, which include monitoring the flow of assignments and student progress.

- The provincial officers (resident tutors) have been trained to use ICT equipment.
- Academic staff involved in distance education are being trained in instructional design and application of ICT as well as monitoring student progress.
- Academic staff from various teaching departments and five non-academic staff in the directorate are being trained to use the new management information system.

ICT infrastructure

The directorate in Lusaka is adequately equipped. However, because some computers and consumables were stolen in the 1998/99 academic year, and owing to damage to computers, some provincial centres still do not have all the necessary equipment. It is expected that in the end all provincial centres will have computers (with modems) scanners, printers and photocopiers, dedicated telephone lines and Internet connectivity.

Courses and student enrolments

There has been a remarkable increase in the number of programmes, courses and student enrolments since the project started. Programmes of study have increased by 100% from three to six, while the number of courses increased by 21 per cent, from 76 in the 1997/98 academic year to 92 in the 2000/2001 academic year. Similarly, the number of distance students increased by 80 per cent, from 314 in the 1997/98 academic year to 586 (435 male and 151 female) in the 2000/2001 academic year. This constituted 12,9 per cent of the total full-time and part-time student enrolment in the university in that year.

The major contribution of ICT in this area is that a computerised management information system containing student records and details of courses has been developed and is in use. Consequently, 'staff have developed the capacity to manage a larger number of remote students through the use of the new management information/student record system'.[14]

Quality

Some of the changes (relative improvements) that have been made, according to the evaluation report, are as follows:

- The print quality of the materials to be used by students has improved, and this will aid learning.

- The format of materials has been changed so that it follows a consistent pattern appropriate to distance education.
- Management information systems have been improved, which allows the records of more students to be handled effectively.
- Electronic communication links with a number of remote (provincial) centres have been established, which will improve the whole delivery of distance education.
- Staff training and experience have improved the general management capacity of the directorate.

Effectiveness

The evaluation report noted that the purpose and the general objective of the project had been achieved and that the presentation quality of the teaching materials, the systems for delivering them and the systems for student monitoring and support have improved.

Efficiency

The evaluation assessed the efficiency of the project in terms of inputs and activities and noted that 'the means used to meet the objectives of this component have been appropriate and efficient, and the resulting capacity appears to be fully utilized'.[15]

Positive impact

The overall impact of the project was evaluated at three levels. At the level of the directorate the evaluation report noted that:

- The project has provided improved working conditions for the staff, which have made the unit more efficient and more effective at delivering distance education.
- The use of e-mail facilities has contributed to overcoming the major problem of delays in correspondence and distribution of information and materials that the directorate was facing with its provincial centres.
- The use of ICT at the directorate for administering its activities has had a very positive impact. Prompt answers could be provided to questions raised during the evaluation because most records are stored in electronic form.
- Academic activities will benefit more when the Student and Course Record System is fully implemented.

At the level of students the evaluation report noted that the project had greatly improved communication between the university in Lusaka and distance students, particular in the provinces where dedicated telephones (for distance education use only) have been installed. It is even better where Internet connectivity exists. This has been made possible by the installation of telephone lines dedicated to distance education (separate from the telephone lines used by resident tutors for their extension work). In addition, some centres have Internet connectivity. Distance students can therefore present their problem or query to the resident tutor, who immediately communicates with the directorate via e-mail or telephone and relays the response to the student immediately or the following day. It tends to cut the waiting time for responses from the university in Lusaka. Thus feedback is quicker.

At the directorate in Lusaka, a direct telephone line with extension to all key offices in the directorate and a fax make it possible for the directorate to handle a number of telephone calls from students or resident tutors at any given time.

Through the direct telephone lines and the e-mail system the directorate is able to contact students directly if they have access to telephone, especially at their workplace or through the resident tutors via telephone or e-mail. Distance students present their problems to the provincial office, which liaises with the Directorae and passes the answers back to the students.

Circulars and other essential and urgent information/messages are sent to provincial centres via e-mail and/or telephone and put on noticeboards for students to read.

However, it appears that as more students realise the usefulness of the provincial centres in assisting them to communicate with the university in Lusaka, resident tutors, who are in the main employed for extension work under the School of Education, which is separate from the directorate, may find it difficult to handle queries from large numbers. A proposal (with rationale and job description) has been accepted by the university management and awaits the approval of the university council to appoint a student support officer at each centre to handle exclusively distance student queries/ issues.

At national level it noted the enormity of the potential impact of the project in making university level education available to thousands of people who might not otherwise have access to it. But there are a number of challenges.

Issues and challenges

A number of problems have had an adverse effect on the development of the project, some of which are:

- Delays have occurred in installing the necessary equipment at provincial centres mainly because some equipment was stolen and had to be replaced.
- The Department of Adult Education and Extension Studies in the School of Education own the provincial centres. Their staff are therefore not under the direct management of the directorate. The resulting division of responsibilities causes delays in the implementation of the project.
- Students do not have direct access to the equipment but have to go through the resident tutors. This is, among other reasons, because of the inadequacy of the equipment and because students lack computer skills.
- There is no one in the directorate with the necessary training to maintain and develop the systems installed under this project.
- The Belgian promoter is the only one who knows the system thoroughly. Although the Computer Centre has experts on ICT, they have not been involved with the directorate systems.
- Dial-up problems from the provincial centres, especially on weekdays, owing to network congestion, are compounded by the comparatively high telephone costs for Internet access, especially in rural provinces (Habeenzu and Munsaka 2001).
- Access to Internet and e-mail services from within the university is not without limitations. The Computer Centre has to link the university to Internet via Zamnet, which cannot provide adequate links.[16]
- The courses are not ICT based; connectivity with provincial centres is very weak; and bandwidth to run courses using ICT is not available at the moment.[17]

Efforts have been made to ameliorate the situation. First, one academic member of staff has been trained and may go for further training in Belgium so that he can assist in dealing with some maintenance and software-related problems without having always to wait for the computer centre staff. Two academic members of staff in the directorate are expected to understudy the Belgian expert in terms of managing the computer record and monitoring system and in training academic staff. In addition, some non-academic members of staff have been identified to undergo more advanced training in computer usage so that they can help deal with minor problems experienced by other users of computers in the directorate.

Sustainability

It is evident from the University of Zambia Strategic Plan: 2002–2006 and the evaluation report of the Flemish Inter-University Council that the expansion of distance education is relevant to the overall development of Zambia 'especially as it has a widely dispersed but highly clustered population'.[18] It is therefore important to ensure that the utilisation of ICT in distance education is sustained after donor support.

At present there is evidence that the sustainability of the improved administration in the directorate 'will continue because the Zambian staff is very familiar with the established ICT support tools'.[19] The training and retraining of appropriate staff that has been undertaken is fundamental to sustainability. In addition, the directorate is able to meet the cost of consumables and spare parts from income generated from its programmes. But it may not be so easy to replace hardware.

However, there is a need for more careful planning in general and a specific plan for sustainability to address various components of the project such as:

- providing continuous training and retraining of staff to operate and maintain computer systems, including necessary system modifications
- ensuring that the directorate generates enough income to cover the full running costs of the project operations for the foreseeable future
- enabling the directorate ultimately to offer its own programmes in distance education to train future staff
- developing appropriate synergies between the directorate and relevant units within the university, especially the Computer Centre and the School of Education, which owns the provincial offices. It is also important to develop partnerships with the telephone network provider (Zambia Telecommunication Company (Zamtel)) and the electricity supply company to improve the capacity of the provincial centres.

Against the above perspective the second phase of the project (2002–2006) emphasises sustainability and is based on a comprehensive five-year project plan, as opposed to the first phase, which was planned on a rather 'ad hoc basis' by means of annual detailed activity plans.

Conditions for success

Some of the factors that condition the successful utilisation of ICT in distance education have been outlined in the sustainability section. However, based on

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the experience of the University of Zambia so far, some of the important considerations are that:

- Both national and institutional policies should provide for and support the development of distance education in general.
- Institutional policies or strategic plans should support and guide the utilisation of ICT in distance education.
- An institution should provide a favourable environment for the general utilisation of ICT. For example the University of Zambia is now one of fewer than 20 (out of 250) public universities in Africa with full Internet access for its entire staff. Students also have access through the library computer network. Under the UNZANET project of the VLIR-UNZA IUC programme the university aims to improve the quality of education and research university-wide. It has already acquired computers for schools/ faculties and 100 of these computers are for student use, and are placed in a central position.[20]
- The level of development of the national ICT infrastructure is a major determinant of successful implementation of an ICT-based distance education programme. For example, although the ICT infrastructure in Zambia is comparatively underdeveloped, the country became the first in sub-Saharan Africa (outside South Africa) to have full Internet access in November 1994. It was provided by the Zamnet Communications Systems Company, which until recently was owned by the university. Internet connectivity to provincial/remote centres (through dial-up systems) is now possible.
- Provincial/regional remote centres should have adequate equipment, and well-trained committed and capable staff, who should belong to the distance education unit to ensure direct supervision and accountability.
- Particularly in a dual mode university, it is important for a distance education unit to have autonomy in planning and managing its operations, including mobilising and managing financial resources.
- A distance education unit should have adequate equipment and should be adequately staffed.
- It is necessary and important to develop a training and human resources development programme on the use and technical support of ICT.
- Distance students should have access to computers and should possess skills to utilise ICT facilities.
- It is easier and quicker to implement an ICT project if it is built on an existing ICT and organisational infrastructure (such as the Zambian

provincial/regional centres that are already connected to the national telephone network).

- Collaboration and partnerships between organisations whose operations have a direct effect on the implementation of the project are inevitable and must therefore be strong and endurable.
- There should be a clear implementation plan, a monitoring and evaluation system and strategies for sustainability (especially for donor-funded projects).

Conclusion

The recognition by the government and the University of Zambia of the need to increase access to university education has provided an impetus for the expansion of distance education. The university adopted ICT as a means of increasing the capacity of the distance education programme to provide more courses to more students and more efficiently.

The high level of investment in the project in terms of human resources development and infrastructure development can only be justified in terms of outcomes. It is noteworthy that the evaluation of the project undertaken in 2001 on behalf of the sponsors of the project, the Flemish Inter-University Council showed that:

> This component has been successful in achieving its purpose and general objectives ... There have been some delays beyond the control of the personnel involved as a result of which the work is not yet complete. It should certainly be completed and additional attention should be given, particularly, to the human resource development necessary for sustainability. If this is done it should be able to achieve its goal.[21]

According to the original objectives of the project it is hoped that when the ICT infrastructure is fully developed electronic delivery of course material will be possible. However, using ICT for direct teaching, such as on-line courses, computer-assisted learning and downloading courses at the provincial centres, and providing direct individualised e-mail interaction between students and lecturers may not be realistic in the Zambian context at this time. It would need careful planning to take into account the dial-up costs and avoid overwhelming lecturers with e-mail messages from students. It would be too expensive and probably a duplication of efforts vis-à-vis materials produced and distributed from the university in Lusaka. Second, for some time many students will remain without easy access to computer facilities.

It is clear from the Zambian experience that it is not very easy to implement an ICT-based distance education of the nature described above. It requires substantial investment in ICT infrastructure, human resource development and careful planning. More importantly, its success depends on a variety of factors, some of which are beyond the control of the institution, such as the level of development of the ICT infrastructure in a given country, especially among potential distance students in the near future.

The second phase of the project (2002–2006), however, which, among other things, will address the problems and concerns discussed in this paper, gives hope that the University of Zambia will achieve its short-term and long-term objectives of expanding its distance education programme so that it can contribute to increasing access to university education more effectively and efficiently than it has done in the past.

Notes

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The operation and development of the teaching/learning system of The Institute of Distance Education at The University of Swaziland

J. O. Odumbe

Introduction

The Institute of Distance Education (IDE) was established in January 1994 with the appointment of the director. Its establishment was influenced by the following factors:

- Expansion and development at high-school level resulted in more candidates qualifying for university education than the capacity of the national university.
- The private and public sectors were calling for the university to provide them with skilled manpower for increasing production in a changing environment.
- The working members of the society wanted an educational opportunity that would enable them to advance their knowledge and skills without abandoning their work and social commitment.

The institute was therefore established with the mission 'to create educational and training opportunities for individuals (employed, self-employed, unemployed and post-high school graduates) who have been unable to, for one reason or another, undertake conventional and professional university education programmes and courses'.

This called for collaboration with the internal departments to develop academic programmes to be offered off-campus using distance education mode of delivery. To facilitate this, the establishment made provision for five units as shown in the organisational structure in figure I:

Director				
Academic Studies Unit	Material Design and Development Unit	Student Support Services Unit	Printing and Production Unit	Research Evaluation Unit
Support Staff				
Administrative assistant				
Secretarial staff				
Technical staff				

Figure 1

Each unit was to be headed by a coordinator within the academic ranks. Between January 1996 and July 1998 four units were established with coordinators but no other working staff. At present the staffing position includes five academic staff, a print technologist, an assistant registrar and five support staff.

Though the core staff is small, the institute carries out its academic activities of writing the study materials, face-to-face tuition and assessment through part-time staff recruited from the internal departments or external educational institutions.

Though it was envisaged that staff of the internal department would do the academic coordination, this has proved problematic, as their workload does not allow them time for academic supervision of the IDE programmes, especially the law programme. Currently part-time staff for the law programme undertake all the face-to-face tuition and assessment.

.ademic programmes

The institute launched its first academic programmes in the academic year 1996/97 with three programmes, namely Diploma in Law, Diploma in Commerce and BA Humanities with a total of 144 students.

In 1997/8 two more courses were launched: BEd (Adult Education) and Certificate in French. The enrolment of students in the five programmes in 2001/2002 is shown in table I below.

Table I   Student Enrolment 2001/2002

Programme	Level I	Level II	Level III	Level IV	Level V	Total
Certificate in French	2	4				6
Diploma in Law	234	140	104			478
Diploma in Commerce	66	38	39	14		157
BA Humanities	156	67	88	15		326
BEd (Adult Education)	4	18	16	30	20	88
	462	267	247	59	20	1055

The admission requirements for these programmes in IDE are similar to those of the internal programmes. At present all students who qualify for admission into any of these IDE programmes are admitted. However, most of the students are young adults directly from school. In the projection of future plans, the institute intends to launch the Bachelor of Commerce and Post-graduate Diploma in Educational Administration and tailor-made short courses.

The teaching-learning system

Components of the teaching-learning system

The teaching-learning sub-system of the IDE comprises specially developed printed modules (study materials) that serve as the main medium of instruction, supported by limited face-to-face tuition and other reference reading materials from the library. The modules contribute the equivalent of two thirds of the expected internal course contact time, while the face-to-face component contributes one third. This follows on the recommendation of Prof Levtzion, who was the last consultant on whose recommendation the institute was established. It was recommended that these study materials be self-contained, covering all the requirements of the various syllabuses that would be covered by lectures in the internal programmes. This includes instructions on further reading.

In the first two years (1996/97) and 1997/98 face-to-face support tutorials were organised under study sessions and monthly weekend schools to give approximately 23 contact hours for each half course within the academic year, which is equivalent to one third of the contact hours in the parallel internal programmes.

The third component of the teaching-learning system consists of reference reading materials as recommended in the course modules to allow students to acquire detailed in-depth information as support to the basic information given in the course modules.

Rationale for the choice of the print medium as main instructional mode

The choice of print as the main medium of instruction was influenced by educational and economic factors.

The educational considerations were that the following:

- Print is familiar to the learners from their conventional education experience.
- Print gives greater control to the learners during their studies than other media. Print has permanency for repeated use or reference as may be required by the learners.
- Materials development falls under direct management of the institution for relevance to the programmes. Well-developed print material can be highly interactive and effective and thereby enhances the learning process.
- It lends itself to adoption and adaptation if need be.

The following economic factors also influenced the choice:

- It is more cost effective for the kinds of numbers of students envisaged in the initial programmes.
- Developing the materials would be within the financial capability of the institution. There is adequate infrastructure to support the production process within the institution.
- Its cost would keep the fees within the capability of most of the students, as the financial outlay required is low.

The choice of face to face as a support service has been influenced by the learner's need for some face-to-face tuition, especially in the early stages of the course. It also recognises that the effect of the human voice and contact cannot

be replaced completely by print. In addition, some components of the course contents can only be effectively communicated face to face, especially practicals and language sound elements. Lastly the face to face provides some transition from the conventional approach to distance approach, even though more prominence is given to the study unit than face to face in the teaching/learning situation even in the initial stages.

The development/production and storage of study materials

The development of the teaching-learning system is a process that starts with the identification of writers or tutors and study centres, followed by preparation and production of materials and orientation for tutors for face-to-face tuition. As provided in the policy statement contained in its handbook, the institute works closely with the internal departments and collaborates with other institutions for staff and facilities.

Study materials development

At present all writers have been identified from staff members of the departments whose courses and programmes are offered by IDE. Though these writers are competent in their academic subjects, they are not always familiar with the approaches used in writing for distance students. To orient them to distance education, the institute has organised and conducted a series of writers' workshops.

The main objectives of the orientation workshops are to enable the writer to understand:

- the teaching-learning system of distance education with special emphasis on the print medium, the background and characteristics of learners or target groups involved in the IDE programmes
- skill and strategies of writing self-instructional materials for distance students and
- methods and strategies of evaluating distance education study materials

Generally the training is action oriented in that after the presentation and discussion of the content the writers are given a chance to put into practice the skills and ideas they have learned in developing and writing various stages of the study materials from the outline and objective development of the module and unit through text development to the summary and self-assessment questions at the end of each unit.

The institute also uses one-to-one briefing discussions together with handouts to orient subject experts outside the workshop situation before involving them in writing. This is followed by close consultation with the instructional designer as they develop the outlines, objectives and the text.

By December 1996 the institute had trained a total of 58 writers who were involved in writing level I and II study materials. By May 2002 a total of 91 writers had undergone training through the orientation sessions distributed across the programmes as shown in table II. However, eighteen of them had since left the university because their contracts had expired.

Table II   Trained writers by October 2000

Programmes	Male writers	Female writers	Total writers
French	2	1	3
Law	8	3	11
Commerce	18	11	29
BA Humanities	22	17	39
BEd (Ad Ed)	8	1	9
TOTAL	58	33	91

From the production of study materials and comments given by the participants, one would say that the training has largely been successful in producing competent writers who are capable of writing good study materials. However, some writers have not mastered the language of presentation, as seen from their products. To assist the writers further, an in-house format has been developed which all writers use with modification as dictated by their subject requirements.

Looking at the status of materials development by May 2002 as shown in table III below, large amounts of study materials are developed for each programme. However, a good number of modules are still outstanding, especially in the upper levels. This affects the teaching-learning programme in those courses, forcing IDE to provide more face-to-face tuition, though all students may not be able to attend owing to other commitments.

Table III   Progress report on materials development May 2000

	Modules expected	Modules completed	Modules in progress	Modules out-standing
Certificate in French	8	8	–	–
Diploma in Law	18	15	3	–
Diploma in Commerce	31	28	3	–
BA Humanities	104	66	16	22
BEd (Adult Education)	63	57	6	–
TOTAL	224	174	28	22

For outstanding modules the course lecturers have identified reading materials for the students, which they discuss at face-to-face sessions. In some cases, course lecturers have negotiated for extra hours for face to face to enable them to give the students more lectures. While these arrangements have enabled the programmes to continue, they have been unsatisfactory for both the institute and the students.

Those staff members who have been slow in completing their work blame it on workload at the departments, especially law, where currently some courses are taught by visiting lecturers from South Africa. Where programmes are offered internally as well, the students 'pirate' by attending lectures, which creates congestion in those classes. In geography, environmental and planning, the programme has been restricted to first year only owing to shortage of staff in the department. Efforts are being made to have all modules completed and made available to the students.

Strategies for quality assurance of study materials

The first strategy for ensuring quality of materials is the identification of competent subject experts and the orientation that is provided for writing for distance education students. In the process of writing the writers write alone or

with others. However, in both cases there is a team involving the writer, a subject expert reviewer for verifying the content and a distance education specialist editor, who advises on the format and language of presentation. The processes of reviewing and editing the study materials are to ensure good quality materials for distance education. Both processes are guided by the institute's guide sheets to ensure systematic treatment by reviewers and editors.

Among the reviewer's broad concerns are checking syllabus interpretation and sequence of presentation of content; level of treatment of concept, ideas and theories; and use of appropriate examples to illustrate concepts and ideas. In a way the reviewer serves as an evaluator of the content and takes into account the level of student, the syllabus requirements and the expected outcome by the institution. In practice the peer review that was expected to take place during the writing process has not been done in most cases. As a result, the completed materials are given to reviewers who themselves are as expert in their subjects as the writers. The review process is appreciated by the writers, who see its value from the comments made by the reviewers.

Editing is another major aspect of improving the quality of the study materials. The editors check on conformity to the institute's stylesheet, especially the structure, language and motivational instructional devices used to encourage and guide the learners.

The last process of improving quality and suitability of the study materials is pre-testing or a field test/trial. So far this has not been put into practice, yet it is an essential part, even when expert views have been obtained on the materials. This shortcoming has been blamed on the unavailability of staff in the evaluation unit of the institute. In the mean time students are encouraged to point out areas where they have difficulties, which can then be clarified by the course lecturers or course tutors and eventually will be revised in subsequent productions.

Production, storage and dispatch of study materials

The production process includes typing, formatting and printing. The typing is done by the writers themselves or part-time secretaries/typesetters who have been inducted into the house style. The use of part-time typesetters has the advantage in that the institute does not have to retain a large pool of typists who may not be fully occupied or needed at times of low writing or in the later stages. However, its major disadvantage is that these people accommodate IDE work only when they are not occupied with their own tasks. In addition they do not

fall under the IDE management. The result is that sometimes there are delays in typing or formatting the materials when these part-timers are busy with their departmental work. Because of the scattered nature of the part-time typesetters in their respective departments, monitoring the progress of work becomes more demanding.

Once the materials have been developed to the final stage for printing, they are sent for production. The printshop has a small efficient staff but with limited capacity. While this is sufficient to cope with IDE's needs during normal or slack times of materials production, it is then overstretched. This results in materials being out-sourced either to other departments of the university with printing capacity or to commercial printers downtown.

The printed materials are stored before distribution to the students. Because Swaziland is such a small compact country, students collect the modules personally from the printshop and the institute does not have to mail them.

Tutorial support services

Tutorial services take two forms: face to face and correspondence. The institute regards these as important support for the printed modules that form the main medium of instruction in the programme.

Preparation of course lecturers and course tutors for tutorials

Before the beginning of each academic year course lecturers and course tutors are given orientation on tutoring in distance education. Such meetings are also used for getting feedback from former course lecturers and tutors. The first orientation was conducted on 28 June 1996 and was attended by 23 course lecturers and tutors. In subsequent years there has been separate orientation for course lecturers ahead of the course tutors' orientation workshops. Generally course lecturers are encouraged to attend tutors' orientation so that they can meet their tutors in their subjects.

During the orientation sessions records indicate that the following are shared with the participants:

- overview of teaching-learning system of IDE
- challenges of distance learners
- role of tutoring
- process of tutoring
- planning tutorial activities.

At the time of writing there are 76 course lecturers and 108 tutors. However, the attendance by tutors at orientation workshops has been smaller. The reasons for not attending are as follows:

- communication reaches them late and
- sometimes their work commitment prevents them from attending.

Each course lecturer and tutor is given a tutor's handbook with detailed information.

For those who attend, the time has been too short to effectively go through the handbook and consult with course lecturers before they undertake their tasks.

Face-to-face tutorials

Face-to-face contacts are conducted by course lecturers and course tutors. The course lecturers are academically responsible for their individual courses and are usually members of staff in the collaborating internal departments. The course tutors may be members of staff in the internal departments or part-time staff hired from other academic institutions or practising professionals, especially for law and commerce programmes.

In effecting this aspect of the learning-teaching system, the institute has established two study centres at Salesian High School in Manzini and Mater Dolorosa High School in Mbabane. This was influenced by the concentration of students in and around the two cities. The arrangement is that course lecturers conduct sessions centrally at the university campus, while the course tutors conduct their tutorials at the study centres, except for commerce and adult education, which are tutored centrally at the university campus. The tutorial sessions are set in the academic year planner, which is provided in advance for course lecturers and tutors. With the increase in number of students in 2001/2002 the classes at the study centre have been split to enable tutors to conduct effective tutorials that allow for student participation.

However, the numbers are still too large and tutors tend to conduct ordinary lectures. No time seems to be set aside for discussion and individual consultations. The situation is worse for course lectures/tutorials conducted on campus as the numbers are too large.

The first sessions of each course are used by the course lecturers to introduce the modules, followed by some discussions of the major topics guided by the tutorial guide. Specifically these involve:

- briefing the students on the special requirements of the course
- quick overview of the course using either the course outline or the module,
- unpacking some key concepts and ideas
- emphasising some highlights and unique aspects of the course and
- giving students tips and techniques for following the specific courses.

At subsequent meetings, the course lecturers use these sessions in a variety of ways but they are expected to focus on the following:

- undertaking broad and in-depth discussion of the modules on selected critical topics
- responding to students questions and difficulties
- providing a brief on techniques for handling examinations
- providing feedback on marked assignments.

In the last study sessions the course lecturers focus on further discussions, assessments and revision work.

The regional tutorials at the study centres or on campus for commerce and adult education conducted by tutors are follow-up discussions as may be arranged between the course lecturer and his/her course tutors. In the brief given to them during the orientation, they are encouraged to:

- organise progressive tutorial discussions around selected topics of the course drawn through consultation with students and course lecturers
- give greater clarification on the content of the module
- provide feedback on assignments and activities/exercises set in the module.

Where the modules have not been provided as indicated earlier under materials development, the course lecturers and the course tutors undertake direct face-to-face teaching using compiled reading materials and handouts. This is a disadvantage as these students do not have adequate contact time to compensate for the absence of a module.

Correspondence tutorials

As well as the face-to-face tutorials the course lecturers and course tutors are expected to provide correspondence tutorials through comments given in the assignments and tests. As the tutors and lecturers go through the work of students, they are expected to make comments to assist the learners/students. These include:

- acknowledging and reinforcing good points
- pointing out errors, misconceptions and irrelevant information
- giving guidance and direction on improving the presentation
- explaining the grade on the basis of improvement or decline.

To facilitate this the institute has provided a pro forma assignment cover sheet for giving a summary of the comments to supplement the detailed comments on the text.

The form has not been used as effectively as expected. The comments are limited and the reasons given by the course lecturers and course tutors are that they have a lot of work from their internal departments and the student numbers are large. They also say that this is an extra task and yet not paid for. It seems that these services should be paid if they are to be done well and serve their purpose. The academic studies unit that handles this has not been monitoring the correspondence tutorial closely enough.

Library facilities

Library facilities constitute part of the teaching-learning system of the institute. Students registered in this programme are allowed reading, borrowing and other library services. But they are allowed to borrow only four books at a time, while internal students are allowed eight books. This arrangement seems to constrain the students who are studying the same number of courses, but are not allowed full access to books. The library committee argues that part-time students are governed by an old regulation that was set when part-time students took very few elementary courses. Library regulations should be changed to accommodate IDE students who may need more books for longer periods.

Though it was indicated in the proposal that there would be library services at regional centres, this has not materialised. However, there are indications that the National Library Services may be able to support distance students through the Swaziland Library Association.

Guidance and counselling

The institute has a unit for student support services whose main tasks involve guidance and counselling. The general purposes of guidance and counselling are to assist the students:

- to make an informed choice when joining the distance education programme

- to make the right decisions at that time
- to provide them with study skills to enable them cope with courses with less difficulties
- to counsel them on how to cope with some of their social difficulties and issues that may affect their studies.

These services are provided through face to face, handbooks, leaflets, and by correspondence. Before admission the institute sends information sheets to schools to inform prospective students about IDE programmes, including entry requirements, mode of delivery and its advantages. This has resulted in many school candidates including IDE among their choices. In addition radio and newspapers are used to inform the general public of dates of application for admissions.

After the admission IDE organises orientation to help the students register for appropriate courses and they are given briefs on distance education programmes to give them an easy start. In addition they are given students handbooks on study skills and the university calendar to guide their academic programmes. As the students carry on with their programmes they are given briefs when they come on campus for face-to-face tutorials. They also have a chance to meet their teachers, who give them advice. The student services co-ordinator receives issues concerning students and organises discussions with them in groups or individually.

In the policy there is provision for correspondence guidance and counselling through circular letters, individual letters and comments on the assignments. This form has not been used intensively. The institute also uses the newspapers and radio to communicate urgent information to students concerning their programmes, for example changes of tutorial dates.

Assessment and awards

It is stated in the policy guidelines that distance education students would be assessed in a similar manner to the internal students for parity. This policy has been implemented as stated. However, where IDE students have only half the course, it has been necessary to have different rubrics to guide the students and even a separate paper.

From an inspection of examination records, course work scores seem to be generally lower than examination scores. The reason is that some students miss

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to take or submit their course work and therefore end up with low averages. In some cases course lecturers have been able to give make-up tests when reasons for missing the tests are justified.

IDE has been able to produce graduates distributed under its programmes as shown on table IV.

Table IV   IDE graduates from 1998/1999 to 2001/2002

Programmes	1998–1999	1999–2000	2000–2001	2001–2002	
Cert in French		1		2	3
Dip in Law	25	22	9	67	123
Dip in Commerce	–	7	31	7	45
BA Humanities	–	1	61	9	71
BEd Adult Education	–	–	–	18	18
TOTAL	25	31	101	103	260

Constraints, achievements and prospects

Constraints

In the implementation of the programmes, IDE has been faced with some constraints at the initial stages while some have remained up to now. The institute operates with a very small staff whereas the programmes and students enrolment have increased greatly, as seen in table II. The institute has yet to establish a research and evaluation unit to assist in pretesting study materials and evaluating and monitoring the general operation of the institute.

Because of the limited programmes offered under IDE, the applicants are not given the full range of courses at the university to allow them to apply for courses of preference. For example, applicants who are interested in biological, physical and social sciences do not have an opportunity to apply or study programmes of preference.

Current library regulations limit IDE students to borrowing only four books while their counterparts in the internal departments are allowed to borrow eight books.

Owing to the workload for some of the writers in the internal departments, some study materials have not been developed within the deadline. Attempts to solve this by acquiring materials from UNISA did not succeed as the course lecturer found some of the materials (especially for law) irrelevant or too advanced for the students in diploma programmes.

Because of demand from students and lack of time, some materials are used in draft form before the reviewing and editing process has been completed. This is far from ideal.

The budgetary policy has constrained the institute in that the services and equipment it has identified cannot be approved, although the income of the institute seems to cover core items such as equipment, workshop and payment rates.

Achievements

When one considers the mission of IDE, its mandate and its operations discussed in this paper, its achievements are worthy of note.

From three programmes with 144 students in 1996, the programmes have increased to five with a total enrolment of 1 055 students in 2001/2002, thereby increasing access to university education for candidates who would have not had that opportunity through the conventional system. At the time of writing the institute has the largest enrolment compared to other faculties in the universities.

The second important achievement is that at the time of writing all applicants who meet the minimum university requirement are admitted. Third, a large number of subject experts have been trained as writers and tutors in distance education. The lecturers have written modules in their subject areas, and this has created local print materials for sustaining distance education programmes. The positive attitude that most of them have shown will assist the institute to produce more study materials and allow students freer choice where there are electives. It will help in the expansion of the programmes to cover other faculties.

Fourth, study materials produced for distance education students are being recommended as reading materials for internal students. This has given the programme credibility and has motivated other staff members to write their modules. With the high cost of imported textbooks, IDE study materials that are developed to final stages may provide a source of income through sales.

Fifth, with increasing student numbers in most programmes, the unit cost of production of study materials has come down, enabling the institute to benefit from economies of scale. This is significant in that essential programmes that attract few students will be subsidised by larger programmes.

Sixth, the running costs of distance education have just reached a break-even stage in its recurrent expenditure. This is an indication that the programme can be sustained.

Seventh, through the fundraising campaign the university has a home base for the IDE. Phase one of the building provides adequate office space for staff, production and distribution section for study materials with basic equipment and some limited learning space. This is an indication of commitment by the university and the government on the use of distance education to provide access to higher education to more qualified and deserving persons.

Finally a total of 260 students have graduated from IDE.

Prospects

Despite the constraints, the distance education undertaking at the University of Swaziland holds great prospects. With the high cost of developing facilities for university education internally, distance education remains the best option for expanding university education as it will depend largely on maximising existing facilities and resources in Swaziland.

IDE has a future in expanding its programmes to meet the educational needs at tertiary level for both credit and non-credit courses.

The development of study materials is likely to influence the faculties to develop their local textbooks instead of relying on imported texts. The establishment of a university press was proposed in the strategic planning document and the contributions of writers for IDE have been cited as a significant indicator of need.

Finally, given the growing need of higher education and the high cost of offering it in a conventional mode, it is possible that the expansion of IDE enrolment may make it necessary to give it autonomy as a university college or an open university in Swaziland. This would be in keeping with the trend of distance education development worldwide.

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A comparative analysis of the academic performance of distance and full-time learners

C. M. Magagula and M. A. Ngwenya

Introduction

Universities all over the world are facing new challenges after the unprecedented social, economic, political and technological changes that were a feature of the last decade of the twentieth century. African universities face similar but more intense pressures occasioned by the troubled internal socio-economic and political problems that have become the hallmark of the African continent in the past 20 years.[1] These challenges include the high demand for university education in the face of dwindling resources to maintain and expand the required physical infrastructure and financial base owing to the inability of the public sector to provide adequate funding. African governments are finding it extremely difficult to continue financing higher education at the same level. As a result, universities find it extremely hard to build lecture rooms, offices, lecture theatres, auditorium, laboratories, libraries, lecturers' houses, and hostels to meet this demand.

Yet developing countries, Swaziland included, still need a highly skilled labour force with tertiary education. In Swaziland, for example, the last national survey[2] indicated that 10% of the labour force fitted the definition of educated and trained manpower, which meant that 90% of the labour force had no professional training or specialisation. The survey also reported that 70% of technical and 55% of non-technical professionals were expatriates.

Until recently, African universities provided university education through conventional methods such as residential face-to-face on-campus teaching. Conventional methods of providing university education have not been able to accommodate the high demand owing to limited financial and human resources and physical facilities on campus. Instead, only a small number of people have benefited from university education. Most of them have been unable to undertake university education owing to lack of places on campus. These are mostly young post-high-school graduates (matriculants), followed by adults who are upgrading their knowledge and skills. Indeed, the latter cannot enrol

for full-time education because it would require them to leave their jobs and forego their earnings. This is not possible because they have family responsibilities and business commitments to attend to, children to feed, clothe and educate, and mortgages to pay.[3]

As result of lack of places on campus over the years the University of Swaziland has rejected a significant number of post-high school applicants who met the basic entrance requirements. In 1993 a total of 856 applicants were rejected, 99 (12%) of whom qualified to enter the university.[4] Between 1995 and 1998, of the 2 181 applicants that were rejected by the University of Swaziland, 426 (20%) qualified for full-time enrolment.

Universities in developing countries are under pressure to explore alternative strategies for providing higher education such as distance education to meet the demand for the critical mass of highly skilled human resource. In response to this pressure, in 1994 the University of Swaziland established the Institute of Distance Education to provide on-campus academic and professional programmes and courses for individuals who wish to undertake university-level courses via distance education. Distance learning refers to the system of teaching by someone who is removed in space and time from the learner with teaching materials that have been systematically developed and various types of media to provide two-way communication.[5]

Since 1996 the Institute of Distance Education has offered five programmes: Certificate in French, Diploma in Law, Diploma in Commerce, BA in Humanities, and BEd (Adult Education). The admission (entrance) require-ments for distance education programmes are the same as for full-time programmes. The only difference is that in practice distance learners tend to have higher O-level aggregates than full-time learners. The basic entrance requirement for the programmes is five O-level credits plus one O-level pass. Given that more applicants qualify to enter than places are available, the University of Swaziland, in addition to subject grades (English language, mathematics, etc.), uses the overall aggregates of applicants' O-level results to admit applicants. These overall aggregates may range from 6 to 37. The lower the overall aggregate, the higher the quality of the applicant's O-level results. Invariably, applicants with lower aggregates will have first preference for admission to full-time studies over those with higher aggregates, even if they meet the basic entrance requirement. The entrance requirements to the distance and full-time BA degree in Humanities are six passes in the subjects of the Cambridge O-level examination, of which five subjects, including English

language, must be passed with credit. A credit, for example, is between 1 and 6, meaning 1 is a better pass than 6. Therefore those students who are admitted to study at a distance are likely to have higher aggregates than those who are admitted to full-time studies.

The content of the parallel distance and on-campus programmes is the same. The lecturers who teach on-campus students teach the distance programmes. Students who study through distance learning write the same or similar tests, assignments, and final examinations as the full-time students. The certificates, diplomas and degrees awarded on completion of the programme are the same as those awarded to full-time learners. In short, there is parity of standards between the parallel distance and full-time programmes. Subsequently, students who wish to transfer from a distance education programme to a parallel on-campus programme or vice versa are permitted to do so, provided that space is available.

The problem

Tertiary institutions have adopted distance education as an alternative strategy for making university education accessible to a wide audience, thereby addressing the chronic shortage of highly skilled labour force in developing countries. At the University of Swaziland there is a perception that the students who enrol in distance education are of lower quality than those who enrol for on-campus programmes. This perception is based on three reasons. First, most distance learners are post-high-school students who had higher O-level aggregates than on-campus students. Second, the distance education delivery mode is considered less effective than the on-campus conventional delivery mode. Lastly, distance learners have less access to lecturers and resources such as the library and Internet than full-time learners. Against this backdrop, no comparative study had been conducted to determine the academic performance of distance and full-time learners since the Institute of Distance Education began to offer parallel distance education programmes. Yet Rumble[6] believes that if the entrance requirements to distance and full-time programmes are the same, the content is the same, the lecturers are the same, and distance and full-time learners write the same final examination, then it should be possible to conduct a comparative analysis of the academic performance of both.

Purpose of the study

The purpose of this study was to compare the academic performance of distance and full-time learners. Specifically, the study was designed to

determine the background characteristics of distance and full-time learners in the second year of the BA Humanities programme at the University of Swaziland, their academic performance, the advantages and disadvantages of studying through distance learning as perceived by the distance learners, and the costs of providing university education through distance learning and full-time learning. The research questions were:

- What were the characteristics of distance and full-time learners?
- What were the academic performances of distance and full-time learners?
- How did distance and full-time learners perceive the advantages and disadvantages of learning through a distance mode and/or full-time study?

Research design

The target population of this study were second-year students who were enrolled in the BA programme at the Institute of Distance Education and in the Faculty of Humanities. As stated above, the courses had the same content, were taught by the same lecturers, and students wrote similar tests and assignments, and sat the same final examinations. The difference was the mode of course delivery. Distance learners were taught through written modules, which accounted for 70 per cent of the teaching, and face-to-face tutorials by course lecturers and regional tutors at the regional centres, which accounted for about 30 per cent of the teaching. Of a population of 90 distance learners in this programme, a random sample of 70 (78%) were selected to participate. Also, of a population of 130 full-time learners in this programme, 70 students (54%) were randomly selected to participate. The lecturers who participated in this study were those who taught full-time and distance learners and were willing to be interviewed.

Data collection

The data collection instruments comprised questionnaires and interviews for both students and lecturers. The rationale was that questionnaires and interviews are appropriate instruments for obtaining information about what people know, believe, expect, feel, want and intend to do.[7] [8] Questionnaires have a certain degree of flexibility and assure anonymity. The questionnaires and interviews included open- and closed-ended items and were pre-tested with similar participants who were not among the targeted group to assess the clarity, consistency and sequencing of questions.

The questionnaires asked learners to indicate their background characteristics, the advantages and disadvantages of studying at a distance, and their final examination marks in the following subjects: academic communication skills,

theology, African languages, geography and English. One of the authors of this paper had access to the records of the students, and double-checked to see whether the learners had provided the correct information.

The questionnaires were distributed by one of the researchers to distance learners at tutorial sessions at the regional centres and to full-time learners during regular classes. The learners were advised not to write their names on the questionnaires. Distance learners were expected to return the questionnaires after a month, whereas full-time learners were expected to return the completed questionnaires when they next met the lecturer. Of the 70 distance learners, only 23 (33%) returned usable questionnaires, and of the 70 full-time learners 40 (57%) returned usable questionnaires.

Interviews were conducted with eight distance learners and eight course lecturers who were selected because of their willingness to be interviewed. Interviews with the distance learners were conducted individually whenever it was convenient for them. Interviews with course lecturers were conducted in their offices. The interviewer recorded the responses in written form. The quantitative data from the questionnaires were analysed with the Statistical Package for Social Sciences (SPSS) to compute basic descriptive statistics. Data from the interviews and the open-ended items of the questionnaires were tabulated into frequencies.

Findings

One of the research questions was to enquire into the background characteristics of the students. The results of the analysis are indicated in table 1.

Table 1 shows that most of the distance learners were 20 years old or less (61%), female (57%), single (90%), had completed their O-levels (96%), and were unemployed (91%). On the other hand, most of the full-time learners were 20 years old and above (55%), female (75%), single (92%), had completed their O-levels (80%), and were unemployed (100%). In short, distance and full-time learners were relatively young, female and single; their highest academic qualifications were O-levels; and they were not working. In other words, most of the students were female, single, and unemployed. The only difference between the two groups was that whereas most of the distance learners were 20 years old or less, most of the full-time learners were older than 20 years.

This profile differs from the traditional profile of distance students at tertiary level. It is usually assumed that they are older and more mature than their

internal colleagues and are taking distance studies because of their personal circumstances. For example employment and family commitments may prevent them from studying full-time. Clearly the motivation for Swazi distance students has more to do with the availability of places on completion of secondary school. These findings indicate that at the time of writing the University of Swaziland distance education programme does not attract in significant numbers the older working audience who need to upgrade their qualifications and constitute the secondary target audience of such programmes.

Table 1   Background characteristics of the distance and full-time learners enrolled in the second year of the BA Humanities programme

	Distance learners	Full-time learners
Age:		
15–20	14 (61%)	17 (45%)
21–25	7 (30%)	19 (50%)
26–30	2 (9%)	2 (5%)
Total	23 (100%)	40 (100%)
Sex		
Male	10 (43%)	10 (25%)
Female	13 (57%)	30 (75%)
Total	23 (100%)	40 (100%)
Marital status		
Married	2 (10%)	3 (8%)
Single	19 (90%)	34 (92%)
Total	21 (100%)	37 (100%
Highest qualifications		
O-level	21(96%)	
Certificate	–	26 (80%)
Diploma	1 (5%)	3 (10%)
		3 (10%)
Total	22 (100%)	32 (100%)
Employment status	21 (91%)	40 (100%)
No	2 (9%)	–
Yes		
Total	23 (100%)	40 (100%)

The second objective was to determine the academic performance of the distance and full-time learners in six subjects, namely academic communication skills (ACS), history, theology, African languages, geography and English. Academic performance was operationalised as the overall average mark or grade obtained by a learner in each of the subjects indicated above in the first-year final examination.

According to the university's grading system, a grade or mark below 40 per cent means 'Fail' (F), 40–49 per cent means 'Fail but may supplement', 50–59 per cent means 'Pass', 60–69 per cent means 'Good pass', 70–79 per cent means 'Very good pass', and 80–100 per cent means 'Distinction'. To compute comparative statistics for distance and full-time learners on academic performance, the marks or grades of the learners were subjected to the SPSS statistical analysis package. The comparative statistics (as means, standard deviations, standard errors, F-values, and level of significance) are shown in table 2.

Table 2 Comparative analysis of the academic performance of distance and full-time learners

Subject	Group	N	Mean score	STD	STD error	F. score	Sign
ACS	Distance	21	3.2429	.7928	.1730	5.004	.029
	Full-time	36	2.7222	.6146	.1024		
HIS	Distance	7	3.0000	.5774	.2182	.0200	.658
	Full-time	20	2.8500	.8127	.1817		
TRS	Distance	13	3.0769	.7596	.2107	.571	.455
	Full-time	28	3.2500	.6455	.1270		
ALL	Distance	20	3.3000	.8013	.1792	8.095	.006
	Full-time	32	2.5938	.9108	.1610		
GEO	Distance	3	4.3333	.5774	.3333	7.212	.023
	Full-time	9	2.6667	1.000	.3333		
ELL	Distance	21	3.1429	.5732	.1251	.058	.811
	Full-time	25	3.0800	1.0770	.2154		

A closer look at table 2 indicates that, with the exception of theology, distance learners consistently, but slightly, performed better than the full-time learners in five subjects: ACS, history, African languages and literature, geography, and English language and literature. In fact, the observed mean score difference between distance and full-time learners was statistically significant in ACS (p.> .029), African languages and literature (p.> .006) and geography (p.> .023).

Although the mean scores of distance learners in history and English language and literature were slightly higher than those of the full-time learners, the observed differences were not statistically significant. In conclusion, distance learners, according to the data in table 2, performed much better in ACS, African languages and literature, and geography than full-time learners in the same subjects.

The third objective was to determine the advantages and disadvantages of studying through distance education and on a full-time basis as perceived by distance and full-time learners. So distance and full-time learners were requested to list these advantages and disadvantages. The responses of both categories are summarised in table 3.

According to table 3, both full-time and distance learners pointed out the advantages of studying through distance education. The advantages included immediate application of knowledge and skills learned in the programmes to the work environment; the opportunity to continue working if employed or self-employed, earn income and attend to other family commitments; the flexibility of studying at one's own pace, time and place; the opportunity to develop independent learning skills, learning to manage time, and developing self-discipline; and being allowed access to modules that are well written and easy to read and understand. It is interesting to note that, although most distance and full-time learners were unemployed, single, and perhaps had fewer commitments, they anticipated that the first three of the above would have been the advantages if they had been employed, married, and with many commitments.

Table 3   Advantages and disadvantages of learning through distance education

Advantages of learning through distance education	Disadvantages of learning through distance education
• One immediately applies the knowledge and skills learned in the workplace • One does not forgo one's employment, and income and can attend to other family commitments. One is able to study at one's own pace, time and place	• Tutorials on Saturdays at the regional centres are an inconvenience because one is unable to have a free weekend • There is less time to consult course lecturers

Advantages of learning through distance education	Disadvantages of learning through distance education
• One learns to be independent, manage time, and apply self-discipline • One is able to easily access modules that are easy to read and understand	• Problems facing distance learners are not attended to timeously by coordinators and tutors. Some courses do not have written modules; learners are given notes and handouts • Some modules are not distributed to students on time • No adequate time to use the library since Saturdays are used for tutorials. Sometimes some tutors do not arrive for tutorials

On the other hand, the full-time and distance learners indicated that the disadvantages of studying through distance education included the inconvenience of using Saturdays for tutorials at the regional centres; lack of time to consult course lecturers since the Saturday tutorial schedule is always fully packed; failure of the institute to attend to distance learners' problems timeously; the unavailability of modules for some courses; the use of notes and photocopied handouts in the absence of modules; failure of the institute to distribute modules to students on time; inadequate time for distance learners to use the library since the Saturday schedule for tutorials is fully packed; and failure of some tutors to report for tutorials.

Second, distance and full-time learners were asked to articulate the advantages and disadvantages of full-time learning. The responses of both groups are indicated in table 4. Distance and full-time learners pointed out that one is able to consult lecturers as often as one can; join other students in group discussions after classes; socialise with other students; have access to the library from 8:30 am to 11:00 pm; access electricity, water and furniture; study when other students are studying; avoid home chores that interfere with studies; and easily access Internet and electronic data sources.

Advantages of full-time learning	Disadvantages of full-time learning
• One is able to consult lecturers as often as one can • One is able to join other students in group discussions • One is able to socialise with other students • One has access to the library from 8:30 am to 11:00 pm • One has access to electricity, water, and process • One is motivated to study when seeing other students studying • One is able to avoid being engaged in other chores that normally take up one's time at home • One is able to access Internet and other data sources	• There is too much freedom for students on campus since they do not stay with parents • Lectures are fixed, thus one is forced to attend even if the time is not convenient • Meals at the refectory are expensive and are served at specific times • There is too much noise in the hostels for students to study

Distance and full-time learners concurred that there was too much freedom on campus since students did not stay with their parents who would guide and advise them. They were left to their own devices, sometimes to their vices. Second, lectures had fixed timetables, forcing students to attend even if the time was not convenient for them. Meals at the refectory were served at specific times that were convenient to the refectory, not the students. Finally, there was too much noise in the hostels, which interfered with students' studies.

Lastly, regarding the advantages and disadvantages of studying through distance education, distance learners were asked to recommend strategies that can be used to address them. For example, they proposed that some Saturdays should not be scheduled to allow students to attend to other matters. They also suggested that no course should be offered at a distance until all the modules relating to that course were available. The notes and photocopied handouts issued to distance learners in the place of modules did not serve a useful purpose. Modules must be provided timeously at registration. The

library should close later on Saturdays to enable distance learners to use its facilities. Lecturers should be available in their offices for consultations not only on Saturdays but also during the week. Alternatively, lecturers should prepare consultation schedules for distance learners and pin them on their office doors. Finally, they suggested that tutors who failed to report for tutorials should be reprimanded and/or requested to repay distance learners for the costs incurred in travelling to regional learning centres for nothing.

Discussion

One of the findings of this study was that most distance and full-time learners were young, single, female, and post-high school students. This finding was not surprising because most high-school pupils in Swaziland matriculate when they are 18 or 19 years old. They enter university-level education when they are about 19 or 20 years. Indeed, at that age most of them are likely to be single.

The second interesting finding was that most distance learners were slightly younger than the full-time students. This finding is puzzling. One would have expected distance learners to be slightly older since they would not have enrolled at university immediately after completing high school. Indeed, one would have thought that some of them might have upgraded their O-level marks to meet the entrance requirements of the university if they had higher aggregates. Full-time learners, on the other hand, tend to enrol at the university as soon as their O-level results are released.

One possible explanation for this age difference could be that this cohort of distance learners enrolled at the university as soon as they completed high school, whereas some of the on-campus learners may have spent a year upgrading their O-level results to lower their aggregates. Second, some of the on-campus students may have been part of a group that is admitted on the strength of teacher training qualifications. Invariably, such students would have been older than those straight from high school. Nevertheless, further investigation is needed to determine reasons for this unexpected finding.

Another interesting finding was that most students were female. Female distance learners constituted 57 per cent, whereas female on-campus learners constituted 75 per cent. Again this finding was not surprising. A cursory analysis of the enrolment records of full-time students in the Faculty of Humanities revealed that over the years female enrolment has always exceeded that of male students. For example, of the 563 students who enrolled in the

Faculty of Humanities in the 2000 academic year, 329 (58%) were female students.[10]

This study found that, on average, most distance learners tended to perform better in academic studies than full-time learners. This was an interesting finding. One would have thought that since full-time learners had better O-level grades than distance learners, had better access to library facilities and course lecturers, had more quality time to study, and more face-to-face interaction with course lecturers that they would perform better than distance learners.

Nevertheless, this finding is supported by research studies elsewhere. Newlands and McLean[11] studied the performance of part-time and full-time students and found that part-time students performed at the same level as full-time students or better. Nielsen and Totto[12] studied the academic performance scores of primary teachers in Sri Lanka and Indonesia who were studying a language programme through distance learning and found that they performed better than their on-campus counterparts.

Was this because full-time learners had too much freedom on campus, since students did not stay with parents who would guide and advise them, therefore they were left to their own devices? Some scholars have speculated that distance learners tend to perform better than full-time learners because the printed materials are well written, well packaged, and have clear objectives; the content and concepts are properly sequenced in small chunks, and progress from simple to more complex concepts.[13] [14] In addition, distance learners tend to receive more directed learner support services through face-to-face tutorials than full-time learners. Nonetheless, further research is needed to confirm or reject some of the speculative reasons advanced here.

Recommendations

Developing countries lack highly skilled labour forces with tertiary education, but African universities can still meet this demand through investing in distance learning institutes or centres, using the new information communication technologies (ICT) and/or simple technologies such as print media and radio. This study has demonstrated and confirmed earlier studies[15] [16] that distance learners are as good as full-time learners, if not better. This is, in part, because of the provision of appropriate learner support systems in distance education. It would appear that the issue is not necessarily the entrance requirements for distance and full-time learners, but whether at the end of the programme

students achieve the same standards as full-time learners. In other words, the concern is not so much what learners bring with them to a programme, but what they get out (skills, knowledge, and attitudes) of the programme.

Indeed, research elsewhere has shown that not only is distance education as good as, if not better than, full-time education, it is cost-efficient and effective.[17] [18] [19] [20] [21] [22] [23] Conventional universities cannot build hostels, classrooms, lecture theatres, auditoriums, hostels, students' union buildings, refectories, libraries, offices, etc. fast enough to meet the growing demand and need for university education. This study has demonstrated that the BA in Humanities programme offered through distance education at the University of Swaziland caters predominantly for young, unemployed, single high-school matriculants, not adults who have family and/or other commitments and are employed or self-employed. Indeed, the mandate of the Institute of Distance Education was to cater for the latter group. Instead, at least in this particular programme, and rightly so, young matriculants seem to have taken advantage of this option. It is perhaps worth recommending, however, that the university should explore how its distance education programmes could also attract and cater for this older adult working audience.

The economies of developing countries continue to decline. Government funding of universities has also declined in real terms. As a result, universities in developing countries are finding it extremely difficult not only to attract high-quality lecturers and researchers, but also to provide basic teaching equipment and materials. It is against this backdrop that we strongly recommend that conventional universities in developing countries seriously consider providing parallel university-level programmes on a full-time and distance education basis with a view to meeting the needs of the varied clientele out there.

Notes

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4   Ibid.

5   Keegan, D., *Foundations of Distance Education*, 2nd ed. (London: Routledge, 1990).

6   Rumble, G., *The Costs and Economics of Open and Distance Learning* (London: Kogan Page, 1997).

7   Babbie, E. R., *The Practice of Social Research*, 3rd ed. (Belmont, California, 1983).

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14 Perry *et al.*, *A Short Guide to Distance Education* (London: International Extension College, 1987).

15 Cf. Newlands and McLean, *The Potential Of Live Teacher Supported Distance Learning.*

16 Cf. Nielsen and Tatto, 'Teacher Upgrading in Sri Lanka and Indonesia'.

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