

**A NATIONAL DISTANCE EDUCATION (DE)
SOLUTION FOR UGANDA:**

**INNOVATIVE APPLICATION OF DIGITAL ICTs TO OVERCOME THE
BARRIERS OF THE EXISTING DIGITAL DVIDE**

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1.0 INTRODUCTION

In Uganda, like everywhere else in Africa, higher education is currently faced with great challenges and difficulties related to financing, surging numbers of students in the face of insufficient resources, equity of conditions at access into and during the course of studies, improved staff development, enhancement and preservation of quality in teaching, research and services, and relevance of programmes. At the same time, higher education is being challenged by new opportunities relating to technologies that are improving the ways in which knowledge is produced, managed, disseminated, accessed and controlled.

In order to open up and widen access to education to the public, a number of education institutions in Uganda are currently establishing a distance education (DE) component in their programmes. It continues to be realized that, in contrast to college-based training, distance programmes have the potential to provide access to learning opportunities on a wider geographical reach and a larger scale. This is of particular value in reaching underserved areas or target groups, which might otherwise have little access to the regular educational system. It can overcome regional differences in access to education and open up access to learners, particularly women, with family and income-generating commitments, and who need to remain in their communities.

In this document, an attempt has been made to examine and propose a national DE strategy for Uganda that incorporates innovative application of ICTs to overcome the digital divide. This has been done by looking at the following areas:

- i) Current situation of HE in the country
- ii) Barriers or constraints pertaining to technology-enhanced DE
- iii) Proposals for the future of technology-enhanced DE

2.0 CURRENT SITUATION OF HIGHER EDUCATION

The education system in Uganda covers eight years of primary (basic) education, four years of ordinary level secondary education, two years of advanced level secondary education, and two-five years of tertiary education. Alternative tracks branch off from ordinary level secondary to technical colleges and primary teachers colleges. Tertiary education covers post-advanced level secondary education; this sector includes universities and other institutions of higher learning such as polytechnics.

2.1 Number of universities

The tertiary education sub-sector encompasses fifty-seven licensed institutions in the following categories:

- 4 public universities
- 12 private universities
- 10 national teachers colleges
- 5 technical colleges
- 5 colleges of commerce
- 5 agriculture and animal husbandry institutions
- 1 forestry college
- 2 cooperative colleges
- 1 hotel and tourism institute
- 4 medical/health sector institutes
- 2 vocational institutes
- 2 weather/earth institutes
- 3 management institutes

Added to these are nine universities and twelve non-university unlicensed tertiary institutions operating in Uganda. The National Council for Higher Education whose responsibility it is to regulate higher education in the country only began operations in January 2003 and has yet to gather the required data on tertiary education in Uganda (*The New Vision* newspaper, Sep. 29, 2003, p.30).

2.2 Gross Enrolment Ratio

By 1995 Uganda's gross enrolment ratio at tertiary level was 2%, way below the 3.2% Sub-Saharan average. However between 1995 and 2003 tertiary enrolment increased by 230% (Balihuta, 2001). The annual average rate of increase in tertiary enrolments has been 46% per annum in the last decade (World Bank, 2000). This raised the gross enrolment ratio to an estimated 2.8%. The projected demand for higher education with improved access to secondary education is

expected to reach 126,396; making up only 3.1% gross enrolment ratio (Ministry of Education and Sports, 2003).

2.3 Number of Students in Higher Education

In the 1950s Uganda had had a single university – Makerere University College – with enrolment of about 250 students at its peak. By the year 2000, Uganda had 29 tertiary institutions housing 55,000 students. By 2002, enrolment in 57 institutions ranged between 74,000 and 85,000. The current total enrolment at tertiary level is estimated at between 75,000 and 85,000 people, normally aged between 15 and 25. Of these about 39% are female and 61% are male (*The New Vision* newspaper, Sep. 29, 2003, p.30).

Most of the growth in tertiary education in the last decade in Uganda has been in the universities sub-sector; 65% of total tertiary enrolment. The remaining 35% are shared by other tertiary institutions in the following proportions: National Teachers’ Colleges 21%, Colleges of Commerce 7%, Technical Colleges 2%, Vocational Training Institutes 1%, and other tertiary institutions 4%. Between 15% and 17% of the students registered in all these tertiary institutions take science-based courses; the rest are arts-based. The proposed national strategic plan for higher education envisages a plan to shift the balance 50% science-based and 50% arts-based.

2.4 Extent of DE Provision

In Uganda today, DE at tertiary level is provided by both public and private institutions. Some of the programs offered through distance education are locally sourced while others are internationally sourced.

Public universities and institutes that offer DE programs

Of the four public universities – Makerere University, Kyambogo University, Mbarara University of Science and Technology, and Gulu University – only the first two on the list offer DE programs. Both Makerere University and Kyambogo University are dual-mode institutions. Although the Uganda Management Institute (UMI) is not ranked as a university, it is a degree-awarding higher institution of learning that also has a DE component. Nsamizi Training Institute for Social Development (NTI) is yet another tertiary institution offering at least one program through DE.

Makerere University

Makerere University founded in 1922, is the oldest institution of higher learning in Uganda. The distance education program at Makerere University was started in 1967 in the Department of Extra-mural Studies. The Department has since been upgraded to a Center for Continuing Education and then an Institute of Adult and Continuing Education. Plans are underway to transform the Institute into an affiliate College of Lifelong Learning.

From 1967 to mid-1980s Makerere University offered correspondence courses in formal and non-formal education. The formal programs awarded preliminary and intermediate certificates in areas such as English language, mathematics, government, and economics, and a course for government clerical workers. In 1991 Makerere University introduced DE degree programs for the first time in Uganda. The degree programs offered through DE at Makerere University include: Bachelor of Education, Bachelor of Commerce, and Bachelor of Science. The Department of Distance Education in the Institute of Adult and Continuing Education also services the Commonwealth Youth Secretariat Diploma in Youth Development Work, accredited by the Open University of Tanzania.

Makerere University also awards the DE Diploma in Palliative Care offered by Hospice Africa. The University is in the process of developing two masters programs to be offered through DE - Masters in Public Health, and Masters in Education (ICT) (The latter is to be supported by Unesco). Postgraduate Diplomas in Education and in Project Planning and Management are also in advanced stages of planning.

When the DE degree programs were introduced at Makerere University in 1991, the total student enrolment was about 7000. The number has since risen to about 30,000 about 30% of who are distance learners.

Makerere University also hosts an African Virtual University (AVU) Learning Centre.

Kyambogo University

Kyambogo University was formally established in 2002 following the merger of three tertiary institutions - the Institute of Teacher Education Kyambogo (ITEK), Uganda Polytechnic Kyambogo (UPK), and Uganda National Institute of Special Education (UNISE). By the time of the merger, ITEK was offering a Diploma in Education (Primary) through DE; UNISE was offering a certificate program in Special Needs Education; and UPK was hosting the AVU Learning Centre.

Under the auspices of the new university, efforts are underway to merge the three DE units into one. There also plans to start new DE programs - Bachelor of Education (Primary) External, Diploma in Special Needs Education External, and

Bachelor of Education (Special Needs Education) – in addition to the on-going programs.

Through the former ITEK, Kyambogo University supervises all National Teachers' Colleges (NTCs) and Primary Teachers' Colleges (PTCs). Through these colleges, the universities supports her distance learners all over the country.

Uganda Management Institute (UMI)

UMI is a public degree awarding institution that is not a university. It is a host to the Global Distance Learning Center (GDLC) of the World Bank. The center mainly runs short courses and seminars for top executives and professional using satellite technology and other computer-aided modalities. The UMI is planning to extend the services of the GDLC to up-country towns in the near future.

Nsamizi Training Institute for Social Development (NTI)

The NTI is dual-mode public tertiary institution that offers a Diploma in Adult and Community Education through DE, in addition to many other social development certificate and diploma programs.

Private universities and institutes that offer DE programs

Of the twelve private universities in Uganda – Uganda Martyrs University (UMU), Uganda Christian University (UCU), Bugema University, Busoga University, Ndejje University, Nkumba University, Namasagali University, Kampala University, Kigezi International School of Medicine, Aga Khan University, and Kampala International University – only UMU and UCU are known to run DE programs. Kampala International University too has mooted plans to start computer-based DE programs in the near future.

Uganda Martyrs University (UMU), Nkozi

Established in 1993 by the Roman Catholic Church, the university has a DE unit that runs certificate and diploma programs in school management and church administration. The programs mainly target personnel working in church-founded schools and local church parishes. UMU works very closely with the diocesan education secretary to offer both administrative and student support for the programs.

The UMU is also host to an AVU Learning Centre.

Uganda Christian University (UCU), Mukono

Founded by the Anglican Church of Uganda in 1999, UCU has a DE unit that takes charge of its Theological Education by Extension (TEE) programs. The TEE programs, UCU offers certificate and diploma courses for lay Christian leaders. Plans are underway to offer a regionally collaborative Bachelor of Theology degree through DE.

International Institute of Education, Kampala

The International Institute of Education is a private institution that offers administrative and student support to distance learners from various foreign universities, including Unisa. The International Institute of Education does not develop and run programs of her own.

African Virtual University

The African Virtual University started as a World Bank project banking on an interactive instructional telecommunications network established to extend much needed science-based tertiary education to the countries of sub-Saharan Africa. The AVU uses interactive satellite- and computer-based technologies to share academic faculty, library resources, and laboratory experiences. In its pilot phase, the AVU concept was implemented and tested in 14 Anglophone and eight Francophone universities. Internationally the AVU offers degree programs and seminars that are open to the general public for a fee.

In Uganda, the AVU started in 1997 with sites at Makerere University, Uganda Polytechnic Kyambogo (UPK), and the Uganda Martyrs University (UMU) at Nkozi.

In the operational phase, AVU was transformed from a project of the World Bank to an independent Inter-governmental organization. Its head office was also moved from Washington in the USA to Nairobi in Kenya. It now has over 34 Learning Centers in 17 African countries. Although three of the AVU Learning Centers are in Uganda, not one of the three centers has been able to mount the degree programs offered through the AVU. All the three Learning Centers mainly mount short courses and seminars for professionals. The main bottleneck for AVU in Uganda has been failure to come up with policies on incorporating AVU activities into the activities of host institutions where AVU Learning Centers are based.

Open University of Uganda

The Government White Paper on Education (1992) proposed the setting up of the Open University of Uganda by the year 2000. However the government only remembered to set up a task force in November 1999. The brief of the task force

was to investigate all aspects pertaining to an open university and to set out the modality for establishing an open university. The task force completed its work in 2000 and submitted its report to government. No known action has taken place towards the formation of the Open University of Uganda since then.

2.5 Delivery Models for DE in Uganda

Nearly all the DE programs in Uganda use print as the main delivery medium. Print is usually supplemented with face-to-face tutorials, audiotapes and telephone contacts between tutors and learners, and among learners. The use of digital information and communications technologies (ICTs) for distance education in Uganda is a relatively new development. The only exceptions to the norm are the AVU Learning Centers and the GDLC, both founded by the World Bank. The AVU and GDLC programs mainly rely on satellite-based and computer mediated interaction. Print and other media are used as supplementary media.

Because nearly all the DE programs in Uganda are within dual mode institutions, the main focus when introducing ICTs in these institutions has not been directed at ICTs for enhancing DE delivery; rather the emphasis has been on ICTs for enhancing face-to-face delivery. For instance, Makerere University and Kyambogo University have made evident strides in introducing ICTs in the management and teaching/learning processes but no infrastructure developed or policy formulated puts a primary emphasis on DE. The proposed single-mode Open University of Uganda is the only institution of higher learning in Uganda whose policy documents and proposed structures put primary emphasis on ICTs for DE. The Open University of Uganda proposes to use radio, video conferencing, satellite-based and computer-mediated instructional technologies as the main media of instruction.

3.0 BARRIERS TO TECHNOLOGY-ENHANCED DE IN UGANDA

The swiftness of ICT developments, their increasing spread and availability, the nature of their content and their declining prices, are having major implications for learning. There is need to tap the potential of ICT to enhance data collection and analysis, and to strengthen management systems in educational institutions; to improve access to education by remote and disadvantaged communities; to support initial and continuing professional development of teachers; and to provide opportunities to communicate across classrooms and cultures.

In spite of the tremendous growth in the range of new ICT applications in some sectors of the Ugandan economy, the impact of these technologies in DE has not

been significant. A number of factors have contributed to the low absorption rate of these new technologies into DE, and some of these are discussed in the paragraphs that follow.

3.1 Communications Infrastructure

Uganda is one of the nations falling on the other side of the digital divide (i.e. the have-nots), with telecommunications infrastructure among the least developed. No countrywide telecommunications network has been established in Uganda, and given the current low level of infrastructure development for ICTs, it is obvious that the majority of Ugandans will not be able to have access to DE through these technologies. Wherever there is some form of rural connectivity, mainly through dial-up telephone lines, the use is affected by traffic congestion due to severe capacity constraints, institutional inefficiency, inadequate maintenance, low levels of skill, diversity of equipment, and lack of common operating standards and procedure.

In Uganda, up to 80% of the digital telephone lines and modern switching equipment is located in the capital city, Kampala, with other areas having largely old and unsuitable lines. Resulting problems include high usage costs due to the low rates at which data can be transmitted or received, high percentage of failure due to poor quality of the lines, and limitations on the applications that can be used (in some areas, for instance, it is not possible to access the web). Because most of the new technologies depend on an effective telecommunications infrastructure, access to DE by many Ugandans, especially those in the rural areas, has been hampered.

Currently the main telecommunications infrastructure providers in the country include the following:

- i) Uganda Telecom Ltd
- ii) MTN Uganda Ltd
- iii) Celtel Uganda Ltd, a mobile cellular operator
- iv) Internet access service providers
- v) VSAT international data gateways

Table 1 overleaf looks at the growth of different forms of ICT in the country for a period of five years. Although no statistics could be obtained for 2003, it is expected that there continues to be sustained growth in the use of these technologies.

Table1: Growth of ICT Infrastructure in Uganda since 1996

SERVICES PROVIDED	1996	1998	1999	July 2000	Feb 2001	July 2001
Fixed lines connected	46,000	56,000	58,000	58,000	61,000	56,149
Mobile subscriber	3,500	40,000	70,000	140,000	210,000	276,034
National telephone operators	1	2	2	2	2	2
Mobile cellular operators	1	2	2	2	3	3
Internet access service providers	2	7	9	9	8	9
Internet/e-mail subscribers (wireless access)				500	1,200	6,500**
Internet/e-mail subscribers (dial-up)				4,000	4,500	6,500
VSAT international gateways				4	8	8
Public Internet service providers (cafes)		3	8	14	24	49
Public payphone licences		7	13	19	18	49
Paging service providers	2	3	3	3		3
FM radio stations	14	28	37	40	100	110
Television stations	4	8	11	11	19	20
Private radio communication operators	453	530	688	688	770	1,210
National postal operators	1	1	1	1	1	1
Courier service providers		7	8	10	10	10

Source: Uganda Communications Commission, 2002

Whereas the trend depicted above shows some growth in communication and ICT infrastructure over the said period, the level of infrastructure and services

are way below the average compared with other economies in the world (West). Moreover, most of the developments are still concentrated in urban areas, benefiting only a small percentage of Ugandans. Over 70% of the communication (ICT) services are concentrated in major urban areas, leaving the rural areas with the least access to these vital communication services, in spite of the fact that over 80% of Ugandans live here. It is clear that more still needs to be done to further develop the infrastructure, and improve their possible use for DE.

3.2 Electricity

Most of the ICT equipment depend on electric power to run. In Uganda, electricity is available only in towns and in very few rural areas where over 80% of the population lives. And even in places where electricity is available, there are frequent outages due, not only to rationing, but also to poor equipment. Non-reliability of electricity supply negatively affects the use of the new ICTs in DE.

3.3 Equipment Access

Universal access to more traditional forms of DE equipment - including radios, televisions, and videocassette players - is still a major problem in Uganda, especially in rural areas. Whatever limited access there may be to computers and the Internet is usually concentrated in the major urban centres, and most often found at the workplace rather than in people's homes.

The lack of technology (or of an adequate technical infrastructure) is a significant barrier to the use of ICTs for DE, not only for the newer computer-based ICTs, but also even for the more traditional ICTs such as audio and video, and radio and television broadcasting.

3.4 Technical Support

Access to computer equipment is short-lived without access to technical support. In Uganda, like in most African countries, all ICT facilities are imported, and this makes servicing them and providing training on them difficult. Because of the high cost of service and spare parts for computers and other ICT equipment, the fear of breaking them sometimes makes use prohibitive. This hinders effective use of these facilities in DE.

3.5 Cost

Either acquiring or accessing the necessary equipment required to use ICTs for DE may have significant cost components, not only in terms of the capital cost of purchasing the equipment, but also those pertaining to maintenance and obsolescence. With the use of newer ICTs, access to the Internet through an ISP,

for instance, will be another learner expense, and Internet connection can be expensive. Uganda Internet service subscribers can expect to pay an average of about US\$65 per month in service fees, in addition to a telephone usage charge for the time they are online. Telephone prices are especially very high in the country for any meaningful DE initiative to be utilized effectively. In addition, learners may also have to bear the cost of any training necessary to acquire the skills to effectively use the ICTs for DE.

3.6 Economic Constraints Relating to Marginalization

Access to ICT facilities is expensive, especially in the rural areas where Internet access means a truck call to the cities where the ISPs have a presence. What is more, for communities that are a large distance from an urban centre, it can be very expensive to provide Internet access and/or technical support. Given these considerations, rural communities may not afford similar levels of ICT facilities (and hence benefit from DE opportunities) as their urban counterparts. It is important to note that as more and more resources become available via the Internet, the discrepancies, if not countered, may have serious implications for the divisions amongst the communities in terms of their access to the presumed benefits of the information society and with respect to continuing education.

3.7 Skills

The use of any technology, especially ICT, for DE may require the learner to acquire the requisite skills. Training in the use of digital ICT facilities is still low, for the majority of the population expected to enter DE.

Along with computer literacy, many DE applications using digital ICTs require skills in the English language. The use of digital ICTs is usually restricted to English speakers because of the dominance of the English language on the network. For most rural communities in Uganda, who may only know how to read and write in their local language, this feature can form a major barrier. This is part of the reason most DE initiatives still target mature learners. Teachers may also need training in adapting DE learning materials to the new electronic media, and in their new roles of teacher, facilitator, and mentor.

3.8 Lack of Policy on DE

In recognition of the catalytic role that information plays in national development, the government of Uganda has set up a policy framework on ICT to ensure optimum utilization of this resource towards social-economic development of the country. There is also a document describing the status of higher education in the country. However, there is still no policy governing distance education, nor the use of ICT in the same.

The ICT policy document puts emphasis on two earlier Acts, which are quite relevant to the current project. One is the Telecommunications Act (1997), whose main objective was “to increase the penetration and level of telecommunication services in the country through private sector investment rather than government intervention.” The other is the Rural Communications Development Policy (2001), which was aimed at providing access to basic communication services within reasonable distance to all people in Uganda.

In spite of the recognition of the need to use ICTs in all areas of national development, the lack of a policy document, guiding the development and sustainable application of this resource in DE has affected the rate at which it is embraced in this sector.

3.9 Socio-Cultural Barriers

Even if equipment may be available, there are other reasons relating mainly to socio-cultural beliefs that may hinder sections of the population from accessing them. In Uganda, for instance, ICTs are classified amongst the technical fields that are best left to men. Women have not embraced the use of these facilities with as much enthusiasm as their male counterparts.

3.10 Relevance of Content

Learners encounter barriers to the use of ICTs when the learning content is not directly relevant to their livelihood, and when it does not value their knowledge, wisdom and experience. As has been noted elsewhere, most of the content available in the web is in English, which, to an extent, poses a language problem. Designers of DE programmes must have extra skills to ensure that relevant content is developed for the various courses.

4.0 PROPOSALS FOR TECHNOLOGY-ENHANCED DE IN UGANDA

In spite of the constraints and challenges confronting the advancement of technology-enhanced distance education in Uganda, there is a growing interest in the concept. Distance education continues to be appreciated as an important innovation within higher education. As a means for delivering university instruction, for instance, it is gradually gaining acceptance in the conventional universities in Uganda. The future of technology-enhanced DE in Uganda, however, will depend very squarely on how we go about addressing the above constraints. Some possible ways and means of overcoming the barriers are discussed in the paragraphs that follow.

4.1 Provision of Appropriate Technology

DE must be learner-centred, and the medium should be selected based on an assessment of the learner needs, taking into account the desired knowledge and skills, as well as the broader technical environment. Establishment of telecentres in various parts of the country may provide isolated DE learners with access to ICTs, thereby enabling them to have access to relevant information available in the various networks and databases. At the beginning, the telecentres could be located at the existing local institutions such as the Ministry of Education offices, National and Community Libraries, or local schools, given that these institutions could already be having some infrastructure including buildings, power and telephone connection. From these centres, DE learners could get an opportunity for low-end computer services including storing and forwarding e-mail, other e-mail-based services such as mailing lists, and e-mail-enabled access to websites.

4.2 Reduction of Costs

Reducing cost of technology, including equipment, Internet access, etc, would greatly enhance access to DE using ICT facilities. The government of Uganda has been experimenting with the provision of tax exemptions on ICT equipment such as computers. This should ideally be extended to other technologies for DE initiatives. Access to the equipment at the various DE access points such as telecentres should also be subsidized by the government and other development partners.

4.3 Addressing Skill Needs

Individuals with low or no ICT skills will be unable to use the technology even if it was available to them. Users will need basic computing and ICT skills before they can make use of access initiatives. Appropriate training should be provided for those accessing DE using new technologies. An expansion of the national curriculum to include ICT topics at the primary, secondary and higher education levels will produce school leavers that not only have a high level of basic educational competence, but also good ICT skills to enable them venture into other educational pursuits including DE.

4.4 Addressing Socio-Cultural Barriers

Socio-cultural issues that bar some sections of the community from taking advantage of ICT facilities to access DE must be addressed, sometimes through affirmative action. There should be campaigns to inform, especially women, about ICT and DE. These sensitization campaigns should be used to demystify technology, and help women and other groups understand what technology could do for them, by relating it to their lives. Other strategies would be to

conduct ICT awareness seminars and hands-on workshops for the affected sections of the population.

4.5 Policy Development

There is need for a good educational policy and theory in Uganda aimed at informing the selection of appropriate technologies and the development of relevant material, taking into account user experience. At a high level, there could be need for a national distance education agency to formulate national distance education policy, and to coordinate this effort at a broader level. This need is made more urgent by the fact that new technologies continue to be placed in institutions on a large scale with little or no policy informing how they will be deployed.

4.6 Research

The whole area of DE, and especially with respect to the use of new technologies, has not been exhaustively researched on and understood in Uganda. There is need to commission on-going research in this area, including national surveys on the needs of learners, current ICT provision and the appropriateness of different ICTs for DE.

4.7 Networking

In Uganda, DE is still provided by residential institutions as part of their strategy to widen access to higher education. There is need for all the institutions presently involved in DE in the country to network and share the scarce ICT and intellectual resources available. This will ensure quality and cost-effective provision of education.

4.8 Partnerships

Higher education institutions in the country will have to form partnerships with businesses and industries as well as the government to promote distance education. All of these organizations will be very crucial in advancing the development of distance education. The private sector will assist with technologies for the delivery of distance education. Government agencies will formulate national policies to promote distance education and invent campaigns to heighten awareness about the potential of distance education. Academicians in the meantime will create locally-based content.

5.0 CONCLUSION

Higher education in Uganda must now play a new role in order to prevent the already widening gap between the highly educated elite and the masses, and to

ensure extensive participation in the education of the general population. Distance education is now seen as an effective, appropriate, and acceptable method of extending educational opportunities, thereby supporting the prospects for enhanced economic growth. New information and communication technologies (ICTs) in particular have opened up a range of new opportunities for course- and resource-based learning, and they are increasingly being embraced in DE to distribute teaching materials and to stimulate learning by means of one-way or two-way communication.

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