

D+C Development and Cooperation (No. 2, March 2000, p. 23-25)

Higher Education through the Internet Expectations, Reality and Challenges of the African Virtual University

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Investment in higher education can be a major contributor to a country's economic growth. With the spread of information technology higher education can influence social and political development and promote social justice. Since independence African countries have invested heavily in their higher education systems, often with the support of external aid and lending agencies. Despite this, higher education in (sub-Saharan) Africa is in a crisis. The World Bank concept of the African Virtual University (AVU) appears to be a lifeline from 'cyberspace'. However, the question arises, will higher education through the Internet be an appropriate antidote for Africa's educational malaise?

Higher education contributes to human resource development in many ways. Higher education institutions have the main responsibility for training a country's professional personnel who participate in development, adaptation, and diffusion of innovations in the economy. Such institutions should create new, or continually extend, the boundaries of existing knowledge through research and advanced training, and serve as a conduit for knowledge transfer, adaptation and dissemination. Thus, investment in higher education can be a major contributor to a country's economic growth. The development of higher education is correlated with economic development: enrolment ratios in higher education average 51 per cent in the OECD countries, compared with 21 per cent in middle-income countries and 6 per cent in low-income countries.

Higher education crisis in Africa

Higher education in (sub-Saharan) Africa is in a crisis. African universities are plagued by meagre educational budgets, broken-down equipment and out-of-date and/or looted libraries. African governments still fail to equip universities and research institutions adequately to become effective instruments for technological innovations, scientific and industrial research

and development. A notable problem, too, is a severe decrease in funding for universities resulting from extended economic stagnation on the continent and with it frequent university closures linked to increasing student and staff unrest. The remarkable decline in academic salaries has prompted numerous university staff to forsake their academic calling. Meanwhile, enrolments have been rising sharply, many new universities have been created, and proportions of teaching staff have declined. There is also the perennial problem of the 'mediocrity' of African academics and thus, implicitly, of the students they teach. 'Mediocrity' often has not had so much to do with the chronic lack of resources (significant a contributing factor as it may be) as it is to do with qualifications obtained from abroad or the lack of adequate qualifications altogether. For very long now, indeed one could say that as far back as the advent of colonial education, the argument has always been that "African intellectuals" do not exist because "they are all made in the West", hence "they are not really African". Thus, beneath all the numerous degrees that African academics may have to their names and the fact that they hardly find 'time to reflect profoundly' because they are preoccupied with the struggle to 'survive', perhaps lies a deep frustration with the open domination of Western, or American thought. Therefore, the university systems (i.e. 'Ivory Towers') created in imitation of Western models after independence have generally been unable to fill the needs of the African society. Indeed, as Edward Jaycox, World Bank Vice President for Africa, said 'African universities are facing enormous difficulties, including declining budgets, lack of qualified instructors and outdated academic programs that fail to meet local needs' (USA Today: Tech Report 1997).

Typified by such problems and constraints, the launching of the World Bank notion of the African Virtual University (AVU) in April 1998 in Addis Ababa, Ethiopia must seem to an interested observer like a lifeline from 'cyberspace'. But the question remains, will education through the Internet be an appropriate antidote for Africa's higher educational malaise?

The African Virtual University project

The African Virtual University (AVU) is only one of almost 40 projects that owe their existence to the Information for Development Program (infoDev) at the World Bank. InfoDev supports innovative projects that use information and communication technology to address development problems. AVU is a satellite based distance education project. It is a network of Internet facilities and its own Web site. It uses a multi-media approach to teaching and learning. The learning package comprises of live or pre-recorded lectures transmitted by satellite and viewed on a T.V. screen, plus handouts, textbooks and other material which are transmitted electronically.

Under the first phase (a pilot project) that was launched in April by the World Bank, 12 universities in six English speaking nations were connected through the AVU to universities in Europe and the United States. The six participating countries were Ethiopia, Ghana, Kenya, Tanzania, Uganda and Zimbabwe. However, by the end of June 1998, a minimum of 25 African higher educational institutions were fully installed and operational, including Francophone countries (Benin, Burkina Faso, Côte d'Ivoire, Mauritania, Niger, Rwanda, Senegal and Togo) participating in the AVU programme. On the other side, the University of Massachusetts and the New Jersey Institute of Technology in the United States, and University

College Galway in Ireland were among the American and European institutions participating.

During the pilot phase, a limited number of first-year undergraduate courses - in the sciences (maths, physics, statistics) and engineering (including introduction to computer sciences and the Internet) were offered via video transmissions, Internet links and other means such as e-mail. During the first two semesters of the project, there were no exclusive Virtual University students. Rather, selected students enrolled in existing university courses received instruction and took exams via the technology. During this phase of the project, tests and paper-grading was the responsibility of the participating African universities, although lectures were delivered from universities in the United States and Ireland.

A second phase expected to have begun in January 1999 was to offer for the first time a complete curriculum for full-fledged undergraduate degree programmes through the Virtual University. African universities are expected to begin originating their programmes in the final phase. But no specific date of commencement for this vitally important phase is as yet known.

The World Wide Web made it possible

The AVU project could have turned out to be a higher educational training in the classic sense: either most participating students would have to stay in their respective countries for the training and only 'dream' of gaining access to American or European higher education; or much fewer would ever come to Western Europe or North America for several years, perhaps through a foreign aid scholarship grant, to complete the training programme. However, a third possibility was chosen by the World Bank, which contributed US \$ 1.2 million for the project. No one had to leave his or her country. And yet many more were and will in the future be able to participate in the training measure together with colleagues from other countries. The World Wide Web made it possible. In those countries where an Internet service provider already exists, a formula for working with them was sought. Where there was none, AVU initiated one for the students. Thus, the participants were able to receive the instructional material via the Internet and were expected beginning with the second phase to be able to send their reports and finished practical exercises by electronic mail.

Practical use is guaranteed

AVU is the first attempt to use on a large scale, the power of information technologies to meet the growing demand both for well trained African scientists, technicians, engineers, business managers, etc. and for access to quality higher education. It is also an opportunity to help stem the common perception in international development that the division into rich and poor parallels a division into the knowing and ignorant. The World Bank says the project's main objective is to tap new information technologies to overcome the many financial and physical barriers that prevent students at African universities from gaining access to quality higher education. For, most African universities have become increasingly irrelevant in the rapidly changing world. For example, they often graduate a disproportionate number of students in the humanities rather than the sciences and engineering. Hence, making use of computer networks

linking Africa to the West, participating universities in USA and Ireland will provide (pre)packaged academic programmes, particularly in science, engineering and business. This is expected to be particularly relevant in the emerging economies of African countries whose work forces lack vital technical skills. In the light of the ever-growing demand for higher education opportunities in many African countries, the AVU project will alleviate, however slightly, the very high competition for university places. Government and private sector organisations in need of continuous professional training for their employees are also expected to benefit in the long-run. This type of 'teleteaching' offers two decisive advantages: the independence of time and of location. The possibility of learning without being absent from the job and less travel expenses are arguments speaking in favour of 'telelearning' and making it attractive for advanced professional training and international training measures.

Makerere: a 'model' university in Africa

Makerere University in Uganda, is one of the 'model' universities in Africa participating in the AVU project. The AVU centre in Makerere University is situated at the Institute of Adult and Continuing Education on the main university campus. The prototype phase piloted to establish whether the project could be implemented in Africa and whether it would be viable or not started on 1st October 1997 and has run for two years. This was financed by the World Bank. However in the long-run, the AVU is expected to become self-financing through the collection of fees from students who register for its courses. Makerere University, which in the last few years has successfully introduced and run self-financing courses is regarded as sufficient indication that it would be feasible to run AVU courses using the same strategy.

Teleteaching: an evaluation

Initial evaluation of 'teleteaching' at Makerere after the first semester which ended in December 1997 indicated that it was a success. The communication via e-mail worked well. Perhaps because this method of information exchange is 'easy to learn, cheap and reliable'. The invention of a 'clockwork (lap-top) computer' (currently simply undergoing a perfecting process), close on the heels of the widespread use of cellular-phone technology to bridge communication gaps, is likely to reinforce the view that this mode of educational communication will as well be easy to access. Indeed, as the inventor of the clockwork computer Trevor Baylis told a Commonwealth education conference in Botswana, "this means that the knowledge which is trapped in your computer can be retrieved at any time, wherever you are. More importantly, if you live in a mud hut you might now be able to use a computer".

The socio-economic reality in Africa

However, the reality of 'telematics' (i.e. the convergence of informatics and telecommunications) in an African context also brings out the difficulties inherent to education through the Internet. The pressure of growing enrolments at secondary school level have

intensified demand for higher education. However, adverse macro-economic conditions and increased rural poverty have reduced many individuals' capacity to support their higher education privately. Hence, beyond the pilot phase, the AVU project would be less likely to benefit a significant section of the African population because of the inability to pay.

Communication via e-mail is quick and efficient, and what is more it is cheap and easy to apply. However, its successful use greatly depends on the respective countries' telecommunications systems. Long gone are the days when, for example, an international call from one African country to a neighbouring country had to be routed via a Western European capital. Indeed, more and more countries are setting up Internet services mainly through private foreign investors with the on-going privatisation process. For example, private concerns provide Internet links in Kenya, Uganda and Tanzania. But these developments must be seen against the backdrop of very high user-cost and the poor state of basic telecommunications (not to mention all the other forms of) infrastructure in sub-Saharan Africa: unstable and insufficient power supplies, unreliable and congested telephone links, unaffordable cost of telecommunications (telephone, fax, e-mail, etc.) services, etc. The clockwork computer, which would undoubtedly increase access and bridge the communications gap, will for the foreseeable future be perceived as far too expensive for its intended users and customers. Due to the fact that the World Wide Web is not really independent of the user's location, it currently constitutes a mere potentiality in sub-Saharan Africa.

Therefore, the enthusiasm for a technological revolution that is taking place elsewhere in the world and not in Africa, but which is creating a tremendous opportunity for African countries to both 'leapfrog' steps in the development process and, to develop and pursue new, more dynamic models of higher education, might perhaps seem rather too optimistic at this moment in time. For example, on an even more basic level a telephone line for each lecturer which is taken for granted in the West, is still a luxury in many African universities. Africa's share of the world-wide telephone network is just 2 per cent. Whereas on-line (digital) Library is a brilliant idea, much depends on the extensive availability and ability to maintain and use computing services. There is still widespread inadequate computer literacy and facilities even among academics and higher educational institutions. Insufficient knowledge concerning the scope of possibilities offered by the Internet are an impediment to its dissemination. Indeed, specialists agree that communication and information opportunities available on the World Wide Web can spur development - under two conditions: 'the user has to have access to the necessary technical equipment and infrastructure, and he/she has to understand how to implement the technology'.

Unfortunately, the basics are lacking in many areas. It is estimated that the technical requirements needed for global communication are not in place for 80 per cent the world's population. Industrial countries are the best equipped with information technology, and even for many citizens in Latin America and South East Asia the use of PCs and Internet has become commonplace. On the other hand, most African countries are undersupplied both in quantity and quality. For example, despite a significant initial contribution to the AVU project by the World Bank, both the computer hardware and software (e.g. e-mail programme) supplied to the AVU centre at Makerere University was far from what is regarded in the West as the state of the art.

Access to information is problematic as well. In Sub-Sahara Africa, 43 per cent of adults are illiterate, and millions of children do not attend school. On the whole then, as long as the costs to gain access to education and the Internet are higher in the developing countries than in the industrialised nations, money will continue to mark the dividing line between knowledge and ignorance.

If sub-Saharan Africa wishes to participate in the knowledge intensive global economy, its higher education systems must be able to produce large numbers of scientifically and technologically-literate, innovation-receptive, highly adaptable and problem-solving minded people with a predisposition to lifelong learning. Information access, within an accelerated and flexible time-frame, to world wide resources to conduct research is critical for such comprehensive higher education. Africa is currently not up to the challenge.

DSE combines teleteaching with seminars

The German Foundation for International Development (DSE) also reportedly engages in ‘telelearning’ on a programme for East African educational scientists. It offers ‘sandwich’ seminars in Germany and in the participants’ home countries, where ‘telelearning’ and physical attendance in class complement each other. They are supervised by the Max Planck Institute of educational sciences and are assisted on the spot by an African consultant. DSE assess ‘teleteaching’ as a future potential, however they do not view “remote” learning as a substitute for traditional learning methods. Instead they see it as a complementary measure. Thus, they are convinced that a combination of attending a seminar and ‘teleteaching’ is especially effective. AVU ought to take into account such views. Otherwise, the AVU curriculum might suffer the same fate as many borrowed ‘ideologies’ of the past: of lack of authenticity. If the trend in Africa is to do away with the ‘Ivory Tower’ image of higher education by linking more with the real needs of the country (at the micro level) then ‘globalisation’ and the attendant high rate of change, facilitated by the convergence of telecommunications, computers, satellites and fibre optic technologies, might not be the best way forward yet.

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D+C Development and Cooperation,
published by: Deutsche Stiftung für internationale Entwicklung (DSE)
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