Preparing African Higher Education Faculty in Technology

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INTRODUCTION

One of the most difficult challenges facing African higher education institutions (HEIs) is the successful resolution of the inherent tension that underlines efficient and effective utilization of existing resources on one hand and intensified demand for more and better education on the other (Okuni, 2001; Sawyerr, 2004). Although the potential of information and communication technologies (ICTs) to enhance participation in African HEIs has been widely recognized, its transformational capacity has barely been reached because of limited infrastructure, technological capacity, funding and sustainability of resources, and human resources and expertise. Poor infrastructure and weak regulatory policies and frameworks have resulted in inadequate access to affordable telephones, broadcasting, computers, and the Internet (Johnson, 2002).

For many countries, the uneven use of ICT presents the equity dilemma, where the gap between the information-rich and information-poor further marginalizes disadvantaged groups, inadvertently widening the digital divide (Dunne & Sayed, 2002). Statistics by African Internet Connectivity (2002), for example, indicates that although all African countries have Internet connectivity, there are only about four million Internet users. A report by the Association of African Universities (2002) indicates that ICT in African HEIs is limited and varied. Consequently, the benefits of ICT are not being fully realized due to factors such as struggling economies and rising enrollment.

Despite policy pronouncements, the status of ICT shows that the continent is at a growing disadvantage with respect to the global information and technological revolution (Association of African Universities, 2000). Meanwhile, educators are expected to be at the forefront, helping to plan and develop national and international systems that facilitate rapid dissemination of information while simultaneously keeping current with the literature in their various academic disciplines.

BACKGROUND

Two features characterize higher education in Africa. First, until the 1960s, HEIs consumed few public resources, because they were not central to the economic needs of the society. As countries achieved independence, higher education expanded as a symbol of autonomy and autarchic development. The second feature was the major response of higher education to social and economic change has been curricular change. As noted by Dunne and Sayed (2002) and Sawyerr (2004), the 1970s witnessed growing cynicism and skepticism that replaced the initial optimism about higher education development. By the 1980s, it was clear that while substantial progress was being made, it was evident that higher education was in need of change. The proposed changes harnessed the potential of ICT and faculty development to improve access, quality, and efficiency of higher education.

The massification of higher education is now associated with increased access for those who have been previously excluded (Dunne & Sayed, 2002). HEIs have invariably been cast in the role of producing skilled human capital, coupled with the responsibility of acting as catalyst in the search for quality and relevance in terms of teaching, research, and service (Seddoh, 2003). Paradoxically, during the transition, higher education has been characterized by increased competition and decreased funding, and slow rates of economic development have contributed to the perception that HEIs are not making significant economic and social contributions. Faced by financial constraints, African governments question investing in higher education, and donor agencies primarily focus on primary education. The following is an overview of the state of ICT in African HEIs in relation to challenges and opportunities. The importance of decision making in the selection and implementation of ICT in higher education is discussed, followed by a discussion of techniques that are useful in preparing faculty to use ICT. Recommendations and the future of ICT are also presented.

TECHNOLOGY INTEGRATION IN HIGHER EDUCATION

The goal of higher education is to expand educational opportunities, seek pedagogical alternatives, and accommodate new theoretical assumptions that potentially enhance teaching and learning (Minishi-Majanja, 2003). While not everyone agrees with the assumption that technology-enhanced instruction is a viable method of delivery, experimenting with new modes of delivery has been one of the means of accommodating enrollment pressures. When ICT are well-implemented and utilized, they can add new resources to existing course content in the learning environment and introduce unique options for teaching and learning.

Access to the Internet offers users the possibility of interaction that transcends the boundaries of time and space, enhances the range of information available to learners, and expands the opportunities for international communication (Donat, 2001; Minishi-Majanja, 2003). Distance education, open learning, and e-learning have all made considerable use of various resources, such as Web-based and Web-enhanced learning. Many of these include satellite links, computers, telephone conferencing, fax, and interactive video. Donat (2001) and Okuni (2000) present the case of the African Virtual University based in Kenya as an example of a first attempt to use on a large-scale various ICT to meet the growing demand for access to quality higher education throughout the continent. Bhalalusesa (1999) and Minishi-Majanja (2003) also present examples of the Open University of Tanzania and the University of South Africa as HEIs that have also been providing quicker and more effective access to higher education in the continent. The University of Ghana also has increased use of the preexisting External Degree Centers (Sawyerr, 2004).

One goal of technology integration is to reach new levels of productivity, but several barriers can obstruct the process. These barriers include the characteristics of the adopter and the organization, the innovation itself, communication, institutional culture, barriers in organizational structures, access to the innovation, and autonomy to implement the innovation (Rogers, 1995; Surry & Land, 2000). Hence, administrators seeking to institute rapid change must consider three issues: First, a percentage of the faculty may resist change. Second, a variety of strategies are needed to address the needs of individuals with differing rates of innovativeness. Third, the strategies should be ongoing over the life cycle of the innovation (Bennett & Bennett, 2003; Surry & Land, 2000).

Ely (1990, 1999) identified eight conditions that should be present when implementing, planning, and monitoring educational technologies: (1) dissatisfaction exists with the status quo; (2) knowledge and skills exist for the implementers; (3) resources are available and accessible; (4) time to learn and integrate technology is available; (5) rewards or incentives are available; (6) participation is expected and encouraged; (7) commitment exists at all levels; and (8) good leadership is evident. The important questions to ask are, "How many of the conditions currently exist?" and "Which conditions require improvement to help in our situation?"

Several setbacks occur when HEIs invest in technology for political and commercial purposes, or without adequate funding to maintain efficiency of operations. First, technology policies are not coordinated with availability of resources, supporting infrastructures, and training. Second, ICT are introduced without adequate understanding of the organizational culture and context, or the political, physical, economic, social, and technological environment. Third, ICT are introduced hastily and arbitrarily in a top-down manner. To maximize the benefits of ICT, they should be viewed as a set of tools for solving specific problems, and not as a universal remedy for all educational challenges. In these circumstances, technology plans should establish explicit connections between the proposed physical infrastructure of the ICT and instructional and professional development strategies needed in addition to evaluation processes that monitor progress. Above all, decisions should be made about whether adoption of ICT is a priority of the HEI and what resources they are willing to invest in.

The importance of faculty support and training to the success of technology in instruction has been widely acknowledged in higher education (Bennett & Bennett, 2003; Erasmus, 2002; Wanzare & Ward, 2000). While many studies have primarily focused on program design, evaluation, and logistics, there is still a need to investigate the effectiveness of these activities. However, no study has yet fully documented the expertise among educators in African HEIs despite ICT being demanded as a means of ensuring that the few resources available are used optimally (Minishi-Majanja, 2003).

Many faculty have received little or no explicit training in how to teach, or in the theories and processes of teaching, yet they are responsible for teaching learners who are expected to master a large knowledge base or to perform a broad variety of procedures (Fourie & Alt, 2000; Wanzare & Ward, 2000). Erasmus discussed the importance of performing needs assessment before initiating a faculty development program. The needs assessment should be followed up with frequent reviews to highlight the progress made and areas to be addressed. It should also focus on proficiency in ICT applications, the ability to adapt to new teaching styles and ability to adapt to instructional environments that may be more demanding and time consuming.

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