

Improving Electronic Information Literacy in West African Higher Education

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INTRODUCTION

Electronic information literacy has gained increased importance with the advent of the new information and communication technologies which, driven by the convergence of computers and telecommunications media, are crucial for facilitating, supporting, and enhancing learning and for the knowledge-based economy of the future. In "Africa's Information Society Initiative (AISI): An Action Framework to Build Africa's Information and Communication Infrastructure," African ICT experts appointed by the Economic Commission for Africa (ECA), have described the potential of the Internet to improve learning in higher education and established the foundation for this to become a reality in Sub-Saharan Africa. The AISI document that the group of experts produced was adopted by the ECA Conference of Ministers as the African Information Society Initiative (AISI) in 1996. The document calls for the implementation of communication infrastructure plans that would be integrated into higher education in the following ways:

- a. providing equitable access to technological resources for distance education;
- b. strengthening local educational capacity;
- c. connecting schools, universities, and research centers to national and international distance education facilities, national and international databases, libraries, research laboratories, and computing facilities;
- d. reducing communications and administrative costs by building communications networks linking all educational establishments;
- e. promoting and supporting collaboration among teachers and researchers; and
- f. extending the reach of educational facilities in informal learning, especially to community level (ECA, 1999, p. 4).

Information literacy has been defined as a set of abilities to "recognize when information is needed and have the ability to locate, evaluate, and use needed

information effectively" (Rader, 2002, p. 2). There are extremely few electronic information-literate scholars including administrators, faculty members, and students on campuses in Sub-Saharan West Africa because this part of the world has only marginally benefited from the explosion of the information and communication technologies. For instance, in its 1999 Human Development Report, the United Nations Development Programme (UNDP) found that developing countries suffer from the most serious infectious diseases. Yet they often have the least access to information to combat them. The information and communication technologies would deliver critical knowledge to information-poor hospitals (UNDP, 1999, p. 59). Concurrently, these technologies can bring critical knowledge and information to schools, colleges, and universities.

STATE OF DIFFUSION OF INFORMATION TECHNOLOGY AND INFORMATION LITERACY

The information revolution has enabled academic institutions to provide a more flexible and open learning environment for scholars. For higher education institutions in Sub-Saharan Africa, the information and communication technologies represent an important opportunity for revitalizing higher education. They can provide a way for academics to overcome their isolation (Useem, 1999). As a result, there is a concerted effort to solve the problem of information technology access and its utilization in higher education institutions. In the 1994 Statement of Ouagadougou, Burkina Faso, administrators, academics, and researchers have identified implementation strategies to develop and improve Internet access and use. Suggested strategies include the promotion the use of electronic communication technologies, the setup of required equipment for faculty in every discipline, the improvement of links between organizations, and the coordination of action (Renaud, 1994).

Although there is now growing recognition of the far-reaching impact of the new information and communica-

tion technologies on learning, a number of issues continue to restrict its diffusion through public higher education institutions in Sub-Saharan African countries. Many of the scholars and administrators who want and need to use information technology have low ICT literacy levels. The shortage of financial and human resources, the lack of knowledge on the availability of potential tools, the insufficient telecommunications infrastructure, and rapid changes in technology are all contributing to this issue (Ali-Dinar, 1996). The greatest obstacle to use of information technology is not its acceptance as a tool in education, but how this tool will be acquired. Additional challenges for users in higher education institutions include lack of training to use technology features and services, follow-up, and continuity in utilization. Furthermore, educational and training facilities to help administrators, faculty members, and students become literate and acquire the proper skills are insufficient at most institutions (Odera, et al., 1996). A survey by the Association of African Universities (AAU) in 1998 found that only 52 of the 232 academic and research institutions had full Internet connectivity, while the remaining 180 institutions had access that was deemed inadequate (Useem, 1999). Consequently, the higher education community in Sub-Saharan West Africa lacks skills in areas including systems analysis, programming, maintenance and consulting, and at all operational levels that negatively affect their productivity.

Higher education, largely state and public-supported, is not only allocated decreasing appropriations but is also affected by the roaming influence of under-developed telecommunications infrastructure and limited available equipment. The state of higher education indicates and continues to reflect the levels of socio-economic status and policy making in the majority of the countries.

CHALLENGES TO ICT AND INFORMATION LITERACY IN SUB-SAHARAN WEST AFRICA

The major obstacles to widespread information technology access and literacy improvement include limited telecommunications infrastructure, cost of information technology equipment, and lack of support and expertise.

Telecommunications Infrastructure

The insufficiency of telecommunications infrastructure is expressed in abundant statistical information, available both in print and on the World Wide Web. Joyce-Hasham

(2001) reported that less than 5% of the world's population was online, more than 80% of the world's population had never heard a dial tone, and fewer than 2% were connected to the Internet. Elliot (2000) noted that Sub-Saharan West Africa had 12% of the world's population but just 2% of its telephone lines. Two of the major reasons for the sluggishness in infrastructure development are financial and political (African Development Forum, 2000). Political decisions failed to bring telecommunications services into rural areas, where more than 75% of the population lives. The existing telecommunications infrastructure is not adequate to sustain a reliance on distance education as a principal method for improving and expanding higher education. Low bandwidth is a limitation experienced by higher education institutions.

Costs

Costs for ICT access in Sub-Saharan West Africa are out of reach for the majority of people. Burnheim (1999, p. 4) stated the following about the use of the Internet:

Its outreach is largely confined to an educated and affluent elite living in the major cities. In many countries where local calls cost for Internet use for example upwards of U.S. \$4 per hour (in some countries as high as \$10 per hour).

In addition, inefficiency and lack of customer service and user support are major factors that affect access and costs.

Technology Support and Expertise

Maintaining, repairing existing equipment, and software troubleshooting are major challenges, especially in rural areas where skilled information technology technicians are scarce or non-existent. Jensen (1999) reported that many computers are old and poorly maintained and found that support and training for technology use are under-funded. Numerous computers are not repaired and therefore remain unused, and available equipment is under-utilized due to illiteracy and lack of skills.

EQUITY OF OPPORTUNITY ON CAMPUSES

While current level of ICT use might appear low, it represents a considerable increase over just a few years ago (Useem, 1999). Some countries have raced to establish the Internet on campuses. These campuses were the van-

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