

Chapter 3

The Era of Digital Technology in Teaching and Learning in African Universities

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ABSTRACT

Technology for teaching and learning has transformed from its crudest form of communicating with stones, pebbles, and skin to modern day technology devices such as filmstrips, projected media, m-learning, and e-learning. This has brought immense change into higher institutions of learning in Africa. This change has brought a revolution in teaching and learning and the roles of universities in producing lifelong learners. A wide range of technology devices and their applications are outlined, ranging from multimedia to radio broadcasting with policies related to ICT applications in different African universities, showing the level of information capitalism, access, and quality of higher education in Africa. Even though low teledensity, inadequate supply of electricity, low funding, and high level of poverty are some of the challenges generally faced by African universities, it is recommended that ICT policies across African universities need to be revitalized. In addition, there is a need to provide sufficient computing facilities and specialized facilities like multimedia laboratories to enable e-content generation. Finally, teaching and learning can be made available to thousands of students in Africa when universities are operating 24-7 online tutorials as a result of ICT and other technological developments. This is explored in this chapter.

INTRODUCTION

Dewey was criticizing the academies of his day in about a century ago, when he indicated that education needed to adopt new instructional approaches based on future societal needs. These

words resound more strongly than ever today. Current societal needs are definitely different at this information age. The Information Age has been described as the Computer Age or Digital Age. This period in human history is characterized by the shift from traditional industry that the industrial

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revolution brought through industrialization, to an economy based on the information computerization. This age has impacted education in several ways. It has created a situation in which students can learn, communicate and share information at any time and at any location. The onset of the Information Age is associated with the digital revolution, just as the industrial revolution marked the onset of the Industrial Age.

During the Information Age, the digital industry creates a knowledge-based society surrounded by a high-tech global economy that spans over its influence on how the manufacturing throughput and the service sector operate in an efficient and convenient way. The information industry is able to allow individuals to explore their personalized needs, therefore simplifies the procedure of making decisions for transactions and significantly lowers costs for both the producers and buyers. Educational organizations have taken advantage of this by developing virtual learning tools and providing education across the globe.

Educational institutions have been bombarded with technological tools such as the Internet, Information Communication Technology (ICT), electronic resources, digital technologies, and interactive games. For students to compete effectively in this digital age, they must be familiar with digital tools. Students in the 21st century learn in a virtual environment and not only in the common traditional classrooms. They are more inclined to find information by using ICT tools. Also, many teachers are collaborating, monitoring and issuing assignments via the same ICT tools.

Overtime, technology in education went with the passage of time from its crudest form of communicating with stone, pebbles, skin to modern days technology devices such as films strips, projected media, non-projected media, smart boards, the Internet, and to e-learning. All these together are interactive and collaborative tools that have transformed teaching and learning. The past decade has bought immense change to higher education. Technology such as course management

systems, learning management systems, portals, PDAs, wireless technology and Web services are being used to create virtual communities that provide interactive platforms for learning.

Educational institutions must understand this phenomenon of digital age and restructure themselves to take advantage of emerging technologies so that students can be prepared to be leaders who not only realize the benefits of using collaborative tools in virtual space, but also are competent in using the tools effectively. The development and proliferation of the Internet has contributed to a revolution in teaching and learning, it has also provided new opportunities for delivering instruction through various media. Information capitalism is the link in the expansion and use of new computer technologies for large-scale record keeping to a set of social practices. According to Kling and Jonathan (1993) it is a useful metaphor because it marries information with capitalism's dynamic and aggressive edge.

Educational systems have been affected by technology all over the world. Education is now seen as a crucial factor in ensuring economic productivity and competitiveness in the context of informational capitalism (Ball, 2008). The continued economic success in an ever-changing and technologically advanced economy requires those things both within and outside the labour market to engage in a constant updating of their employability profile through a process of constant re-engagement in education and training. This need for a flexible labour force has opened challenges of constant up-skilling and retraining of the workforce; hence universities have a big role to play in order to produce lifelong learners. Capitalism as an institutional system also depends upon structure that facilitate reinvesting profit into a development organization since information capitalism refers to a different, but contemporary, shift in the ways that information is managed (Mcfarland, 1984; Ives & Learmonth, 1984); therefore, the era of information age in teaching

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