Gaps and Challenges of E-Learning

Most African countries have inefficient ICT-related infrastructure such as electricity, telecommunications, computers and trained personnel. A survey carried out by the AVU revealed that internet connectivity in tertiary institutions in Africa is inadequate, expensive and poorly managed (Twinomugisha, Magochi & Aluoch, 2004). Therefore, the three pillars of the ICT revolution, that is, connectivity, capacity and content, are yet to be realized in Africa.

In today's world, a new level of commitment is required in order to educate the young generation and e-learning perhaps emerges as an important tool of imparting knowledge and information. The challenge, however, is to provide a suitable means to disseminate disparate information in a dynamic, open and distributed e-learning environment. While there still exists some uncertainty about its role in education and professional training, there is a growing concern about the issues and strategies of e-learning that may be faced by both providers and learners of e-learning in future. E-learning is here to stay as the fast changing pace of technology, the shortening product development cycles, lack of skilled personnel, competitive global economy, the shift from the industrial to the knowledge era (mathai & arumugam, 2016).   E-learning becomes more and more important. Reasons are the paramount importance of knowledge, life-time learning, globalization and mobility. Having a great e-learning strategy and great programs is just no guarantee of success. Without a clear and well thought out implementation strategy and plan, the e-learning efforts will most likely fall far short of the goals, learners' needs, and management expectations.

Problems that characterize traditional international education, such as recognition of qualifications, also apply to e-learning. But because the very nature of e-learning includes distance and technological aspects, these issues may be more easily overcome (truong, 2016).

Key challenges arise while implementing E-learning in Africa

With education being seen as a key foundation for Africa's development, e-learning has the potential to play a pivotal role in the transformation of the delivery of quality education across the continent. To achieve the level of scale required in the delivery of quality education, Africa needs to leap forward and maximize on the potential of e-learning in creating innovative learning solutions. The education delivery approach in Africa has to shift from one that is highly dependent on physical infrastructure such as schools and colleges, physical learning materials, and in class education delivery to one that makes extensive use of interactive education technology. Progress has been made over the past decade and according to a report by ambient insight, Africa has the highest growth rates in e-learning in the world for four out of the five self-paced eLearning products and services, including packaged content, custom content development services, cloud-based authoring tools, learning platform services, installed authoring tools, and installed learning platforms.

Despite the progress that has been made, there are three central challenges that continue to exist which hinder effective implementation of E-Learning in Africa.

1. *Internet access / connectivity:*

Without access to the internet many eLearning projects in African countries are throttled before they even begin. U.N. broadband commission reported that 8 of the 10 countries with the lowest levels of internet availability in the world are in sub-Saharan Africa. The 8 countries are Ethiopia, Niger, Sierra Leone, guinea, Somalia, Burundi, Eritrea, and south Sudan. Internet penetration in all 8 countries is less than 2 percent of the population. Providing all the students with internet access is a very expensive proposition for most African governments and this is more so in the case of rural centers and remote areas, where internet connections are bound to be erratic, if available at all. The countries that lead in e-learning on the continent and that have had the largest levels of foreign and local investments in this sector have the advantage of better than average internet access and connectivity. South Africa's peak connection speed was measured at 16.8 mbps in the first quarter of 2015, giving it a world ranking of 112th.

 Kenya currently leads in Africa with regards to internet connectivity with the highest bandwidth per person on the continent, the fastest speeds, and some of the lowest internet costs (foster & graham, 2015). International companies such as google, IBM, and Microsoft have set up offices in Kenya and made concerted investments in education in the nation as a result. In Kenya –home to IBM's Africa research lab and a state-of-the-art innovation center– IBM is partnering with the Kenya education network (KENET) to deliver advanced hands-on certification courses to faculty and students of 50 Kenyan universities over kenet's broadband network. Microsoft has also partnered with intel east Africa and the Kenya private schools alliance, to launch the 4afrika youth device program, which provides a bundle of affordable devices, educational applications, online services, data plans, and smart financing to Kenyan learning institutions (Guerriero, 2015). On the other hand, based on Rwanda utilities and regulatory authority (RURA)'s recent report, Rwandans who use internet have reached 52.1% of the population; which is 6.1 million, in the last quarter of 2018 that covered September to December (mehta, 2018).

2. *Availability of locally developed content and curriculum online:*

Content development is a critical area that is too often overlooked. Academic institutions in Africa have not made the

level of investment needed in developing local content that is aligned with national curriculums and that can be utilized for eLearning (acedo & hughes, 2014). The majority of tertiary institutions still use textbooks from the United Kingdom and the USA and there has not been a consistent drive to develop local content. Given the unique facets of Africa, the diversity of languages and culture and the continent's specialized needs, there is a great opportunity for African countries to develop targeted plans for content development. A large proportion of the educational software produced in the world market is in English. For African countries, such as Swaziland, where English language proficiency is not very high, especially outside urban areas, this represents a serious barrier to eLearning. There are significant challenges in terms of language patterns and local language usage (especially in serving the youngest populations), and as such there is a need for locally developed content.

3. *Training and professional development:*

Teachers on the continent have been brought up in education systems with limited technology and they find it difficult to utilize technology to engage and support learning. There is a great emphasis that needs to be made for teachers to understand that technology is not replacing them, but rather it is an enabler that will enhance their work. A huge challenge is to develop and implement training and professional development for teachers so they may embrace teaching with technology and understand the benefits of teaching with technology as a way to advance the academic outcomes of students. Partnerships with private entities play a key role in building the skills of teachers in ICT. In south Africa, Microsoft has trained over 31,000 teachers and school leaders on ICT integration with the aim of enhancing teaching and learning and having an impact on nearly 4 million learners. Over 800 trainers from the South African department of education have been trained to roll out, scale and sustain the Microsoft partners in learning program (de vries, 2016).

Different challenges related to the implementation of E-learning system in higher learning institutes:

Lack of systemic approach to ICT implementation: integration of ICTs in the functions of any organization is a complex process that needs to be fully conceptualized and defined from the beginning. However, this is not the case in many higher learning institutions in developing countries as most of them have embraced the ICT integration process without clear plans to guide the way. The institution ICT policy and strategic plan should be defined to provide a framework for the development and implementation of specific ICT projects. Moreover, considerations of some issues are requires such as (I) ICT infrastructure already in place; (ii) ICT skill levels in the institution; (iii) number of staff and students in each department and projected growth; (iv) academic management process: curriculum development, assessment methods and administration; (v) cost-effectiveness analysis (including hidden costs) and the choice of proper technologies for the needs of the institution; and finally (vi) staff development in new technologies (Cameron and Ulrich ,1986).

Awareness and attitude towards ICTs: it is important for all stakeholders in the institution to know the existing ICT facilities and services and their importance in relation to their specific tasks. However, according to Tusubira and Mulira (2004), there tends to be some vague knowledge about ICTs, some interpreting them as simply advanced technologies that require a lot of money and very advanced skills. They are not appreciated as a means of creating efficiency. Lack of awareness goes along with attitude. Positive attitude towards ICTs is widely recognized as a necessary condition for their effective implementation (Woodrow 1992).

However, the university is facing great challenges with limited classroom space, as well as applying the use of modern technology in teaching and learning. The university is considering the implementation of e-learning for some courses or programmes so the students can follow the courses from a distance and engage in a dynamic learning process and knowledge construction through e-learning. It is against this background that the need to develop e-learning becomes especially relevant. The university is situated in a rural region. For some programmes, part-time students do not stay on campus and therefore travelling to the campus for courses becomes a major challenge.

Administrative support: administrative support is critical to the successful integration of ICTs into teaching and learning processes. Administrators can provide the conditions that are needed, such as ICT policy, incentives and resources. The commitment and interest of the top management and other leaders at every level is the most critical factor for successful implementation of ICTs. Dwyer et al (1997) emphasize that for the integration of ICTs to be effective and sustainable, administrators themselves must be competent in the use of the technology, and they must have a broad understanding of the technical, pedagogical, administrative, financial, and social dimensions of ICTs in education.

Transforming higher education: many institutions fail to integrate ICTs into teaching and learning because they are using ICTsto replicate their traditional practices, content and control. Their plans appear to be driven by ICTS and not by pedagogical rationale and focus (Ehrmann 1995). However, effective integration requires a transformation process where all stakeholders are involved to re-examine their existing structures and practices, as pointed out by bates (2000: 13), if universities and colleges are to successfully adopt technologies for teaching and learning, many more than minor adjustments in current practice will be required. Indeed, the effective use of technology requires a revolution in thinking about teaching and learning. Part of that revolution necessitates restructuring universities and colleges – that is, changing the way higher education institutions are planned, managed and organized.

Educational-paradigm-oriented definitions:

- "E-learning is defined as learning facilitated by the use of digital tools and content that involves some form of interactivity, which may include online interaction between the learner and their teacher or peers.

- "E-learning is the use of new multimedia technologies and the internet to improve the quality of learning by facilitating access to resources and services, as well as remote exchange and collaboration .
- "E-learning is a broad combination of processes, content, and infrastructure to use computers and networks to scale and/or improve one or more significant parts of a learning value chain, including management and delivery.
- "E-learning is defined as information and communication technologies used to support students to improve their learning.

Differences between eCoaching and eLearning (Kotelnikov V, 2020):

E-learning (Teaching)	e-Coaching (Coaching/Facilitating learning)
Helps you learn a specific subject	**Inspires** you, helps you identify and define your specific**goals**, and organize yourself to attain them
Helps you learn functions you've never done before	Helps you apply yourself personally in new ways
Passes knowledge to you	Helps you unlock your true potential and generate innovative ideas
Gives effective answers	Asks effective questions
Concentrates on the depth of knowledge; develops your functional excellence	Concentrates on the width of knowledge; develops your cross-functional excellence
Facilitates vertical in-depth thinking	Facilitates lateral **creative** thinking, develops capabilities for building new connections and looking for wider solutions
Curriculum-based; a journey with a fixed destination	A continuous journey; never-ending**improvement** process
Learning for the future; helps to develop knowledge reserves	Provides just-in-time (JIT) knowledge that can be applied immediately

Online Teaching vs. Offline Teaching:

Online Teaching incorporates the use of internet to deliver study material to students in the form of video tutorials, presentations and texts. The primary objective is to dispense knowledge to students and enable them to learn at their own pace and convenience. Offline teaching refers to the conventional classroom teaching where both teachers and students need to be physically present (Naman W. et *al*, 2020).

Advantages of offline teaching over online teaching:

In offline learning being face to face allows more participation and activity based on traditional forms of education. Traditional education requires students to develop a sense of discipline and responsibility. Learners can gain an understanding of the subject content and make connections between them in real time. If a student doesn't understand what is being taught, they can immediately gain clarity by asking their teacher. Through all the interaction in the class, students learn how to behave socially and they understand how to handle responsibility. Online learning is totally technology dependent. One requires decent internet connection for completing the online tasks. If the computer doesn't work properly, it becomes difficult to submit time bound assignments. This all doesn't happen with offline learning. But anyways, offline learning is a time-consuming process.

Pros and Cons of online teaching (Naman W. et *al*, 2020):

Pros of online teaching	Cons of online teaching

• You can learn whatever and whenever you want.	• You cannot interact face to face.
• You can learn at your own place, anywhere.	• Online classes increase personal responsibilities.
• You can learn with technical skills.	• In Online classes students, faculty and other doesn't have the same opportunities to make network connections.
• *There is less pressure in online classes*	• *In Online classes, you will need to in charge of your own education*

• You can learn whatever and whenever you want.   • You cannot interact face to face.