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E-Learning Implementation: Benefits and Challenges in Developing Countries

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***Abstract*—E-learning (electronic learning) is emerging as the new paradigm of modern education. Educational institutions, either willingly or reluctantly, are increasingly embracing e-learning in order to remain competitive and improve their services. Advances in e-learning technologies have initiated significant opportunities and threats to institutions within the education sector. With particular reference to e-learning, the absence of accurate information on the key challenges which influence the implementation of e-learning in developing countries could mislead an institution into implementation failure. The extant research tends to specifically focus on developed countries, with little undertaken in developing countries, especially with regards to the implementation process. Therefore, this study investigates the challenges that hinder the implementation of e-learning in developing countries. It also presents the benefits that have emerged with the implementation of e-learning. The positive perception of these benefits should encourage education institutions to adopt e-learning. Finally, this paper provides general conclusions, in the form of recommendations to increase the success of e-learning implementations. It is significant for both researchers and practitioners, alike, as it provides greater understanding on how to best use their efforts to improve the success to failure ratio of e-learning implementations.**

***Keywords*—e-learning, developing countries, challenges**

I. Introduction

Over the years, information communication technology (ICT) has been perceived to be important in transforming and modernising most organisational functions and operational practices [1,2]. ICT has performed as an intermediary in enabling effective interaction between a wide range of stakeholders [3,4,2]. Furthermore, new technologies are revolutionising the practices of teaching and learning at education institutions around the globe. With the emergence of internet and web technologies, education institutions have been seeking to exploit the use of e-learning technologies as a means to cater for the ever growing demands of flexible teaching needs in distance education [5]. Reference [6] reported that "Growth in e-learning is rapid as institutions race to compete for a share of the increased and changing demand for education. E-learning could have potential and major effects on the way education is designed, implemented and delivered". More and more educational institutions around the world are pursuing this phenomenon with aims of cutting costs, enhancing services and improving effectiveness and efficiency in the education sector. Advances in electronic learning technologies have also provided significant opportunities as well as threats to organisations in the education sector. Reference [7] stated that "E-learning characteristics fulfil the requirements for learning in a modern society and [they] have created great demand for e-learning from businesses and education institutions". The worldwide e-learning market is growing at a rate of nearly 36%, but failures have also occurred [8,9,7].

In the information age, the gap between the developing and developed nations has grown wider due to the ease of access to new technologies and the usage of ICT in developed areas [10]. In contrast, developing countries have been mainly exemplified by low living standards, high rates of population growth, low income per capita, as well as being economically and technologically dependent on the developed economies [11]. Developing countries are therefore still facing several issues which pertain to the implementation of e-learning in their countries. The literature available on e-learning implementation and growth in developed countries is relatively extensive and wide. However, interestingly, the literature documenting e-learning implementation and diffusion in developing countries is limited [11,12]. Thus, the absence of accurate information on the key challenges affecting and influencing the implementation of e-learning in developing countries could mislead an institution into failure implementation.

This paper therefore aims to explore the challenges that hinder the implementation of e-learning in developing countries. In addition, this study also investigates the benefits that emerge as a result of e-learning implementation. Ultimately, an understanding of these benefits will help decision-makers to appreciate the success and risk factors influencing e-learning implementation.

II. E-Learning

E-learning is representative of the interaction between the learning process and ICT [13]. E-learning therefore includes two difference concepts: firstly ICT as the means for the transformation and secondly learning as the environment for implementation. There are various definitions of electronic learning [14]; this is due to the different perspectives that have been presented by experts, especially since the term itself is new in the field of knowledge. Reference [15] defines e-learning as the use of ICT to improve and/or support learning; accordingly, it consists of a wide range of tools and technologies including: e-mail, the internet, video streaming, virtual classrooms, etc. Reference [14] refer to e-learning as "a learning process in which learners can communicate with their instructors and their peers, and access learning materials, over the internet or other computer networks". In addition, reference [16] pointed out that e-learning is the use of internet technologies to deliver a broad array of solutions that enhance knowledge and performance. E-learning can also be perceived as the delivery of course content via electronic media, such as: the internet, intranets, extranets, satellite broadcasts, audio/video tapes, interactive TV and CD-ROM [17,18,19]. Reference [20] stated that e-learning "can take place totally online in virtual environments or in a mix of virtual and face-to-face environments; a mode entitled *blended learning*".

E-learning has the potential to positively influence the education sector [20]. According to reference [14], "e-learning can be used by lecturers to improve the efficiency and effectiveness of educational interventions in the face of the social, scientific and pedagogical challenges". Reference [21] reported that e-learning is based on the following three major criteria:

- E-learning is networked, which makes it capable of instant updating, storage/retrieval, distribution and the sharing of the instruction or information;
- It is delivered to the end-user via a computer using standard internet technology;
- It focuses on the broadest view of learning that goes beyond the traditional paradigms of training.

III. Benefits Of E-Learning

E-learning will be promptly adopted if its merits can be identified and presented to the stakeholders. Understanding the benefits of e-learning raises the possibility of the allocation of the managerial, financial and technological resources required for the implementation process. Like e-business, e-learning provides various benefits to its stakeholders. It has the potential to influence positively on the education field [20]. As mentioned previously, the education sector is characterised by a growing interest in e-learning which is based on a significant trend in the improved application of e-learning technologies [22,23,12]. Furthermore, reference [24] noted that e-learning delivers great opportunities for both educators and learners to develop their educational experiences. Fig 1 below provides an illustration which summarises the e-learning benefits which are presented by the researcher.

The most significant benefits of e-learning, according to the literature, are that it: firstly, offers an "anywhere and

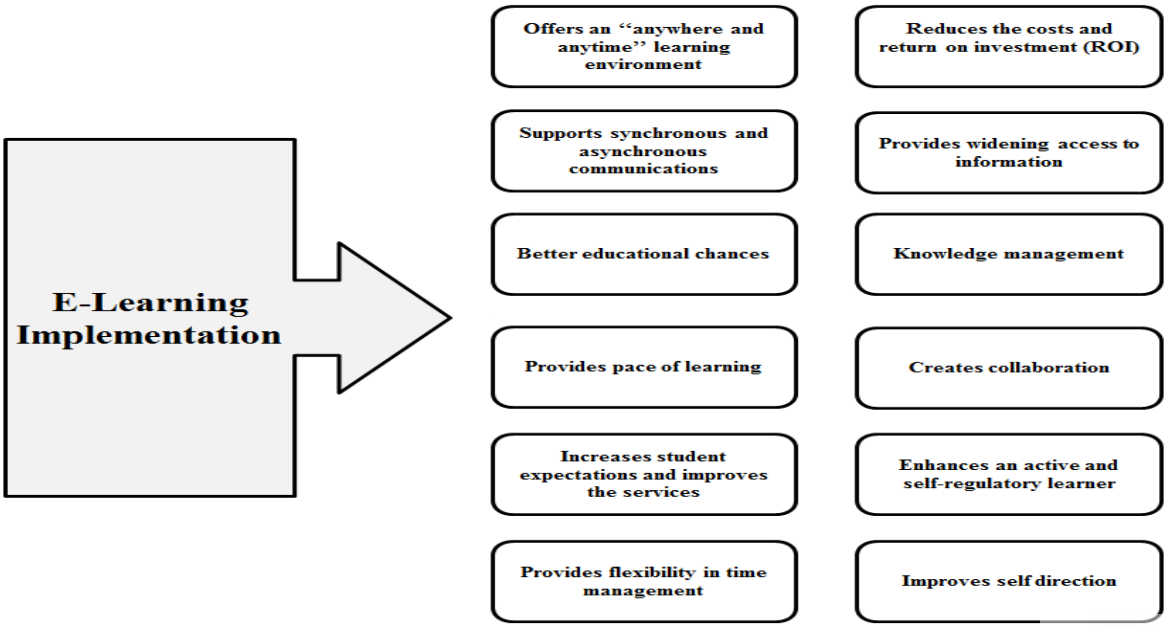

Figure 1. Benefits of e-learning.

anytime" learning environment that is independent of the pressure of time and the constraints of distance [24,20,25, 26,27,5,14]; secondly, it supports synchronous and asynchronous communications in various formats ranging from text, voice and audio [20]; thirdly, it provides better educational chances for individuals who are disadvantaged by geographical, physical or social circumstances [20,28, 26]; and, finally, it reduces the costs incurred by the traditional educational institution in providing services [14,25,29,22,30,31]. Accordingly, the cost advantages centre on the costs saved in terms of: travel and time (away from the work), cutting the costs for teaching materials, equipment, classrooms and other facilities, and the capability of e-learning to serve vast numbers at one time, or over time, with minimal added cost. Moreover, e-learning increases student expectations and improves the services delivered [25] by: providing flexibility in time management and the pace of learning [32]; creating collaboration and enhancing an active and self-regulatory learner [14,25,20,27,5]; improving self-direction and by providing a much wider access to information [32]; and, finally by encouraging and promoting knowledge management [33,14].

In addition, there are high expectations in organisations which present e-learning, these expectations are presented in terms of both the range of the return on investment (ROI) and the period over which the payback will be achieved [26]. Many organisations are using, or intending to use, e-learning and they expect a significant ROI [34,26,5].

IV. Challenges Of E-Learning

Many educational institutions in developing countries have been slow in adopting e-learning technologies as a result of various challenges which have hindered the implementation process [35,36,15]. Overcoming these challenges would therefore be one of the biggest tests for any educational institution planning on implementing this concept. Research on e-learning has identified the following challenges as creating an issue: the lack of ICT infrastructure [22,5,19,37,14,38,11]; a lack of awareness [39,38]; problems in access to the internet [5,14,19,22]; a lack of trust and security [13]; problems with quality assurance [7,39]; a lack of training [22,14,13]; a lack of support and funding [14,39]; problems with computer literacy [32,39,40,19,11]; regulatory issues [13,41]; a lack of technical support [14,41,6]; and, a general lack of strategy and frameworks [39,38]. All of these issues are hindering the implementation of e-learning across many educational institutions; a summary of these e-learning obstacles has been presented by the researcher in the following figure, Fig 2.

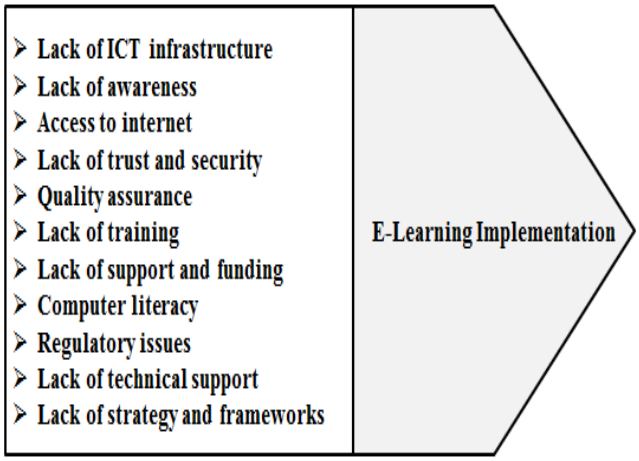

Figure 2. Challenges of e- learning.

Some authors have also classified the above mentioned challenges within the broader context of organisational, technical and social dimensions [22]. The vital goal for educational institutions must therefore be for them to ensure that e-learning efforts successfully overcome these obstacles in order to deliver to users (both educators and learners) systems that are easy and suitable to use, but which also meet their expectations.

V. Conclusions

The outcomes of this study contribute to both the theoretical and empirical knowledge on the implementation of e-learning. This paper has helped to overcome some of the gaps by providing insight into the phenomenon of e-learning from the perspective of a developing country. It is noted that the extant research tends to specifically focus on developed countries, with little undertaken in developing countries. Furthermore, this paper has identified the most pertinent obstacles that are likely to be faced during the implementation of e-learning in developing countries. It should be noted that the absence of accurate information on the key challenges that have impacted on the implementation of e-learning in developing countries could mislead an institution into failure implementation. In addition, this paper has also identified various benefits which are likely to emerge as a result of the implementation of e-learning. The benefits of e-learning are various as they provide social, economic, technical, cultural and managerial advantages. These benefits represent milestone for the acceptance and smooth implementation of e-learning. E-learning is still in its infancy across many developing countries and it is therefore envisaged that the findings of this study would be of use to the education institution leaders in developing countries.

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