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# REVIEW ARTICLE

## CHALLENGES IN IMPLEMENTING E-LEARNING IN UNDERDEVELOPED COUNTRIES

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**ABSTRACT**

Advances in technology have altered our lives and transformed the way in which students learn. Technological advances have made e-learning a pivotal method for enhancing teaching and learning processes. Unlike the face-to-face method of teaching, e-learning makes learning simpler, and easily accessible. E-learning provides a cheaper, faster, and potentially better alternative to face-to-face learning. With e-learning, education can be facilitated from virtually anywhere and at any time as a result of the convenience and affordability caused by technology. Underdeveloped countries have started experiencing e-learning however, they faced many challenges such as IT infrastructure, government policy, locally developed curriculum, computer literacy, professional development and awareness to its implementation. This study provides insights into the challenges of implementing e-learning in underdeveloped countries. Results of this study serve as a foundation for the enhancement of underdeveloped countries higher education systems.

## INTRODUCTION

Education is a key foundation for the development of any country including underdeveloped countries. In this light, e-learning has the potential of playing an important role in transforming the delivery of quality education. E-learning makes extensive use of interactive educational technologies. The approach used to deliver education in underdeveloped countries is highly depended on the traditional method, which demands physical infrastructure such as college buildings, chalkboard, etc. (Sobaih *et al*., 2016). Electronic learning (e-learning) is a form of learning which takes place using the internet. In e-learning, live lectures, video conferencing, and email are all possible through the internet, enable anywhere, and anytime access to participants. For the past decades, underdeveloped countries have seen significant progress in e-learning. Underdeveloped countries are competing to include e-learning in its various forms (Huelsmann, 2013). The major reason behind this progress is to change the way education is delivered to the population and the innovation that technology brings. Despite the progress in e-learning, there are many challenges including IT infrastructure, government policy, locally developed curriculum, computer literacy, professional development, and awareness, which hinder effective implementation. This paper reviews the major challenges of implementing e-learning in underdeveloped countries and hopes that the findings serve as a foundation for enhancing higher education systems.

**Literature review:** This research study provides insights intothe challenges underdeveloped countries face when implementing e-learning. Technological advances have made e-learning a pivotal method for enhancing teaching and learning processes. According to Morrison and Camargo-Borges (2016), e-learning provides a cheaper, faster, and potentially better alternative to face-to-face learning. With e-learning, education can be facilitated from virtually anywhere and at any time as a result of the convenience and affordability caused by technology. According to (Long, 2017), advancement in technology and student success is linked as a result of education institutions adoption of e-learning. Similarly, Anderson (2016) noted that when technology is used properly, it facilitates better teaching and learning processes for both students and teachers, thus enhancing the quality of education. Businesses and researchers show a significant level of interest in understanding how technology helps to create a competitive edge for higher education institutions and nations in general (Mao *et al*., 2016; Erevelles *et al*. 2016). Generating a strategic e-learning plan is different from successful implementation. Unlike developed countries which see user perception as a major factor in adopting technology (Martins *et al*., 2014; Yang *et al*., 2016; Hsiao *et al*., 2016), several major challenges still remain for underdeveloped countries. Based on the review of the literature, this study proposes that factors including IT infrastructure, government policy, locally developed curriculum, computer literacy, professional development, and awareness as major challenges facing the implementation of e-learning in underdeveloped countries. The proper designed, adoption and effective use of technology is pivotal. Therefore, IT infrastructure is critical to the development of sustainable competitive advantage, which in turn produced basis value (Gheysari *et al*., 2012). Continual changes in countries educational systems for e-learning design can be achieved only when there is an established IT infrastructure enough to accommodate this change (Shibambu and Ditsa, 2017).

### Challenges of implementing e-learning in higher education

**IT Infrastructure:** Information Technology (IT) infrastructure is a major challenge to the implementation of e-learning in

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underdeveloped countries. IT infrastructure consists of hardware, software, computers, and all telecommunication systems components required to efficiently facilitate the transfer and management of data (Ejiaku, 2014). In addition, it includes IT professionals to design, install, maintain, and train IT personnel to efficiently operate the system. Lack of infrastructure results from inadequate and sometimes absent access to hardware and software. Most schools and private home/residence in underdeveloped countries have low to no access to basic technology including internet, electricity, etc. These factors have made it harder to deployed and subsequently adopt e-learning in underdeveloped countries.

**Government Policy:** Governments in underdeveloped countries are to set forth strategic policy structure for the acquisition, implementation, and use of technology for educational and economic growth. The ultimate development of IT infrastructure in underdeveloped countries has been moving slowly compared to that of developed countries due to inadequate investment and poor policy (Choi *et al*., 2016; Vivarelli, 2014). This slowly moving development has, in turn, has created issues in the introduction and adoption of technology in general. Governments in underdeveloped countries acknowledge the significant and need for technology in education settings but take little to no action in this regard (Choi *et al*., 2016; Fong, 2009).

**Locally Developed Curriculum:** Underdeveloped countries have not invested in the development of content that is aligned with local curriculum, which can be used for e-learning purposes. Underdeveloped countries used learning materials including textbooks from the developed world, and have not made the effort to develop local content which aligns with the students' population and the society in general (Taylor and Von-Fintel, 2016; Bui and Nguyen, 2016). English is the primary language for a large proportion of the educational materials produced in developed countries. For underdeveloped countries such as Liberia, where English proficiency is low, especially in rural areas, this presents a serious challenge for e-learning environment. Local language usage posed a significant challenge, and as such, the need to locally developed curriculum and content can't be any higher. Given underdeveloped countries unique facets, diversity of culture and languages, the opportunity to develop a targeted plan for curriculum and content development can't be denied.

**Computer Literacy:** Lack of computer literacy among the population in underdeveloped countries poses a major challenge to the implementation of e-learning. Computer literacy refers to a user's ability to perform a technology-related tasks environment (Bediang *et al*., 2013; Kanwal and Rehman, 2017). Users' confidence in skills and knowledge to use technology significantly contributes to their use of e-learning. In e-learning context, empirical evidence shows that the more experience a user is in using a computer and the internet, the more likely he/she is to accept and use technology for learning purposes (Bediang *et al*., 2013). Moreover, users with high computer literacy are more likely to use e-learning and invest effort, which overcomes obstacles as compared to users with low computer literacy (Abdullah and Ward, 2016).

**Professional Development and Awareness:** Teachers in underdeveloped countries received their education with little to no technology integration. Based on this experience, it's challenging for them to incorporate the use of technology to engage their students while supporting learning activities (Sung *et al*., 2016). Teachers need technological awareness emphasizing that the use of technology does not replace their status but enable them to enhance their work as teachers. Teachers need training on how to use technology for teaching and learning purposes such as how to learn and access learning materials using technology. Similarly, the student populations lackawareness of e-learning platform and technology in general. Underdeveloped countries heavily depend on the face-to-face (traditional) method of teaching and lack the awareness of the effectiveness of e-learning. Aduwo *et al*. (2016) noted that proper knowledge and understanding of the benefits e-learning brings motivate both students and teachers participated. Lack of awareness among the population including teachings and students alike hinders technology adoption and implementation, which makes awareness a vital attribute in e-learning adoption in underdeveloped countries.

**Findings and recommendations:** This study presents the above challenges to the implementation and adoption of e-learning in underdeveloped countries. In a specific country context, educational institutions and governments should address the challenges discussed in this paper to the fullest. The design and implementation of e-learning need to be aligned with local content and norms. Governments should invest in IT professionals whose responsibilities are to design, install, maintain, and train IT personnel to efficiently operate the system. Teachers need technological awareness and training on how to use technology for teaching and learning purposes.

**Conclusion**

This paper is a continuous effort in highlighting the challenges underdeveloped countries faced in the implementation of e-learning. The role technology plays in our lives today makes it critical for underdeveloped countries to invest in e-learning. Lack of IT infrastructure, poor government policies, lack of awareness and qualified IT professionals are contributory factors in the adoption of e-learning in underdeveloped countries. This study provides insights into the challenges of implementing e-learning in underdeveloped countries. This study is a useful tool for higher education institutions in underdeveloped countries wishing to implement e-learning.

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