Review of Issues Responsible for Adoption Gap in Developing Countries

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Abstract: The integration of E-Learning programs into the educational system has reshaped the process of acquisition and dissemination of knowledge throughout the society [1]. Although numbers of researchers approve of the effectiveness of E-Learning integration in terms of the innovation it offers to engage with students does not guarantee the success of E-Learning programs. This can be observed in developing countries, which have not yet been able to benefit fully from the advantages of E-Learning [1]. Therefore, the purpose of this paper is to utilize the research already done in this field and examine factors that impede adoption of E-Learning in developing countries and provide strategies to successfully overcome the issues. Preliminary findings demonstrate electricity failure and English proficiency as the most significant barriers to successful integration of E-Learning. Lastly, conclusions are drawn and suggestions made on the basis of issues identified.

I. INTRODUCTION

The exponential growth in Information and Communication Technologies has made it possible and a requirement for E-Learning to be quick, elastic and customized. Convention to resolve new issues and challenges requires innovative thinking in order to acquiring necessary skills and acquaintance as well as efficiency to manage and make all points to coincide with possible available resources. E-Learning is an outcome of the innovative transfer of knowledge and E-Learning which has been greatly influenced with the advent of Internet and Information and Communication Technologies (ICT). A recent and ever expanding trend is observed in higher education with the introduction of E-Learning systems that enables e-learners (sitting in remote or distance areas) with online access to E-Learning contents. The major driving forces behind this trend are the changing demographic factors of the students, multiple conditions for education delivery, dissolving time gap and the innovation in technology itself [2] [3]. In order to keep pace with the changing trends, educational systems all around the world are in the process of integrating ICTs to enhance the E-Learning experience of students. While embedding E-Learning systems in traditional E-Learning and teaching system, a strict, controlled yet effective band has to be put up so not to hamper integrity of traditional education system but also integrate advantageous feature of E-Learning. Surry, Ensminger, and Haab (2005) suggest that integration of instructional technology in education may face numerous barriers, such as infrastructure of technology, students' competence, technology satisfaction and instructors' motivation [4]. No matter how effective the technology is, it serves little purpose without up to the mark implementation. Many higher education institutions have failed because of poor strategies, high cost of technology, resistance to change, competition and poor delivery of courses (Elloumi,2004; Saadé, 2003) [5][6]. These issues become more pronounced for developing countries, which have limited resources and technical expertise as compared to developed countries. Still, the experience produced by E-Learning in education domain goes way beyond entertainment (Garrison & Anderson, 2003). Active participation of learner, dynamic content delivery and option to learn being abstract is few out of numerous add-ons of E-Learning systems that advocates implementation of E-Learning systems in various application areas, irrespective of domain.

Observing low inclination of nation's Government to uplift standard and technical advancement in education sector feels as hurdle to make education of developing countries at par with education standards of developed countries. Low literacy rate plays a major role in it and situation gets worsen by low financial funding by administrators of the nation's According to Ndubisi (2004) investment in infrastructure, training IT staff and content development are not enough for successful adoption of E-Learning [7]. Merely offering courses online and attempting to reproduce the classroom experience may cause unexpected difficulties. Most common observation is, Persistent frustration and dissatisfaction of students towards the use of web based E-Learning due to delayed feedback from e-tutors. This requires highly focused and large initiatives for the students/participants to identify their preferences, E-Learning patterns and their views for online course in which they have enrolled and recommending content that matches to their objectives. This will cut edges of hefty information stored in web- repository. This paper brings out the issues and challenges faced by educational institutions of developing country to establish E-Learning as a successful medium to impart education by collaborating traditional teaching mechanism with advance E-Learning methodologies.

II. ADVANTAGES OF E-LEARNING

E-Learning system's responsibility is defined not only to deliver e-content from repository located in remote to an end user's system but also responsible to telecast the content in most acceptable and interactive manner. More than that, it affords the opportunity for the information to be stored in various mediums and formats over long periods of time and accessible over long distances. Compared to face-to-face E-Learning, these mediums can provide means of revision several times over in a day and over a period in a manner more accurate and convenient to students who are at the center of the teaching and E-Learning activity. These facts are not only true for primary education; their relevance spans all levels of education, and even work place learning and training purpose.

E-Learning offers great flexibility in E-Learning (Kocur & Kosc, 2009) [8]. This flexibility provided in various formats in such a manner that E-Learning content can be presented and allows registered students a variety of options to learn at their own pace and flexibility . From rhymes and songs, Alphabetical to numerical studies and higher invention and innovation through Computer-Based Training (CBTs) and E-Learning Management Systems (LMS), students can learn as often as they want and that too in customized manner. Although some research work has shown that this flexibility does not always lead to successful E-Learning, as this can be attributed to the lack of discipline, competency in the use of the medium (technology) and general attitudes of the users. Where these issues are non-existent or minimized, the benefits of flexibility in E-Learning could be harnessed to provide a world of information that has been tried, tested and preserved for centuries for the purposes of E-Learning and development.

E-Learning also offers a lower cost to both students and implementers. There are different E-Learning products and packages. Ranging from CBT materials on CDs to LMS on the internet,

E-learners have options to select products and packages that suit their requirement, depth of knowledge and available capital. Some of these are often one-off purchase or payments which place little or no burden on the student who needs to learn. Again compared to having to enroll in an institution with its inherent accommodation and other expenses, E-Learning offers the same opportunity to learn without incurring these implicit costs. For the implementers, there is evidence to show that the initial setup can be quite expensive. This, however, need not be the case as different vendors, products and packages exist. Also, when the experiences of other implementers are considered, it reduces the potential of escalating costs and failure of E-Learning implementation. Coupled with proper maintenance and updates, the E-Learning system could be brought up to state of the art through updating and assurance of the reliability of access at all times.

E-Learning also has the potential to absorb the increasing number of students that characterize the developing countries educational system particularly at the tertiary level (Karim & Hashim, 2004) [9]. The major issues creating these problems include inadequate teachers, inadequate E-Learning resources like books, classrooms/lecture halls, accommodation, etc. This creates a situation where teaching and E-Learning can become ineffective due to large numbers of students and the inadequate and sometimes unavailable required E-Learning materials. This has resulted in many institutions limiting their admission of the many qualified applicants they receive each year, particularly at the tertiary level. With E-Learning access to digital content becomes easy, always available and easily accessible. When students are properly trained to access and use them, E-Learning then becomes driven by the student and guided by the teacher in a flexible way. This can actually enable institutions to absorb more students while enhancing the teaching and E-Learning activities using E-Learning.

E-Learning also makes available content for re-use. Through careful research and development of E-Learning curriculum, materials essential for E-Learning to take place are developed and stored on digital mediums. These contents are therefore available for further study and review in the face of developments in the field through research. This makes them always available for re-use without the stress of development from scratch. This has the potential to save time and allow adaptation of the content to different E-Learning situations with only slight modifications. If well managed, there can only be improvements in the content over time, a situation that will ensure improvement in the E-Learning effort and availability of scarce E-Learning materials in a developing country.

III. CHALLENGES OF E-LEARNING IMPLEMENTATION

No doubt E-Learning is advantageous in every domain yet it is not completely acceptable because of multiple challenges that make implementation of E-Learning system a sooth project. Andersson and Grönlund (2009) proposed a conceptual framework for understanding the challenges facing E-Learning implementation in developing countries and for conducting further research [10]. This conceptual framework consists of thirty major challenges categorized under four major categories: individual characteristics (both students and teachers), technological challenges, course challenges, and contextual challenges. Considering the presence of all the challenges operating at different levels, there appears to be a long benefit from the adoption of E-Learning. Below we discuss the various challenges.

3.1 INDIVIDUAL CHALLENGES

1. Student
   i. Motivation – Student motivation is seen as a very critical factor in a successful implementation of E-Learning. Students must be motivated to use the E-Learning system. There is the need to provide some kind of reward system that would motivate students to use E-Learning. The E-Learning must be aligned to the expectations and needs of the students. When they perceive that they can achieve their educational objectives and aspirations through the E-Learning medium, they will be more willing and motivated to continue. Where this is not the case, the potential for high dropout rates will cause the implementation to be unsuccessful.
   ii. Economy- As discussed disinterest of government to share fraction of fund for ICT act as a challenge for E-Learner to continue registered course till the end. Funding is a major problem for most students in developing countries due to the prevalence of poverty, especially in developing countries. Seeing scenario of developing country, families are unable to afford even basic fee structure of school, affording fees for higher learning through ICT is highly unexpected. Many institutions have instituted flexible payment terms for their students and yet still many are unable to meet the payment deadline. Though E-Learning can provide a cheaper alternative, this must be seen to be reasonably cheaper and more affordable if its implementation is to be successful. A special fund can be created to encourage interested students into enrolling on the E-Learning programme.
   iii. Technological confidence- Students also need to have the necessary computer skills and feel confident in the use of computers. The lack of these skills can be a hindrance to E-Learning, especially for students who are entirely new to computers as computer confidence accounts for much of the predictive power of good achievements. Many students in developing countries have either not been introduced to computers or have a difficult time grasping the concepts and skills due to many factors like no access to computers, a little time spent using computers due to the number of students wanting to access them, etc. Many students, therefore, leave school with little confidence in their ability to use these types of technology. Where this is the case, implementing E-Learning systems become a challenging task both for the team who implement and the users.
   iv. Gender- Issues of gender can also influence E-Learning implementation in developing countries. Where there is a higher drive towards male education, compared with the girl child education, the total number of potential users of E-Learning can be drastically reduced. Encouraging more girls in education can increase the number of users, particularly as there are shreds of evidence that girls learn faster than boys. If this is not well managed and promoted, it could affect the implementation of E-Learning in some institutions.

2. Teacher
   i. Technological confidence- The confidence of the teacher in using computers and other technologies is very important. The ability of teachers to use technology in imparting knowledge and skills to their students can determine the impact to be made with E-Learning. This ability is equally dependent on their prior experience in the technology's use and skills acquired. Where the confidence of the teacher in the use of technology is low, the teacher would either not use it or use it ineffectively. In either of case, of E-Learning system implementation will be lower than focused standard.
   ii. Motivation and commitment- Teachers and trainers also need to be motivated and committed to the E-Learning if its implementation is to be successful. Benefits of an E-Learning implementation must be explained to teachers in order to gain their commitment and raise their motivation. Its direct reflection can be seen to disturb trust and cohesion to the implementation of E-Learning. Motivation and commitment ensures that teachers look forward to ways for improving E-Learning trend among students. Failure in this cause student dissatisfaction. For instance, where teachers fail to provide feedback or timely feedback, students tend to either drop out or not pass.
   iii. Qualification and Competence- The teacher's qualification and competence in general and in online teaching in particular also play important roles. There is the notion that the higher qualification a teacher has the tendency to appreciate new things like the use of technology in education. Also, where the competency of a teacher is enhanced, fear of failure and use of a technological medium is reduced, if not eliminated. For E-Learning, training must be provided to the teachers and instructors. Their competencies need to be strengthened through training from time to time. Research can also be carried out to ascertain their levels of development. Where this is not the focus of attention, any attempt to successfully implement E-Learning can be flawed.

3.2 COURSE CHALLENGE- Course design

   i. Curriculum- There is the concern that the curriculum, which details all the activities and contents to be undertaken are often taken from the classroom context without modification and placed in the E-Learning setting. A curriculum developed for a classroom takes the physical presence of students into consideration and clarifies the concerns of students immediately. Some research exclusively emphasizes the need to develop new curriculum specifically designed for an E-Learning setting (Andersson and Grönlund,2009) [10]. The failure of implementers to take this seriously shows a lack of understanding of the inherent differences between E-Learning and classroom based teaching. Where this is not considered, it can lead to difficulty in E-Learning, leading to dissatisfaction, discouragement and subsequent dropout and failure of the programme.

ii. Subject content- This refers to what is actually being taught or learned. How interesting, relevant, accurate, up to date and in line with the needs of future employers go a long way to determine the successfulness of the E-Learning implementation. Where students do not perceive or feel that the information being provided is useful, they would be discouraged from using the system and discourage future users. There is the need for the subject content to be relevant to the expectations of the students and future employers; else the implementation of the E-Learning will not be successful.

3.3 CONTEXTUAL CHALLENGES- Organizational

i. Knowledge management- For a successful implementation of E-Learning, most researchers argue that there is the need for a knowledge management or knowledge building system where a knowledge repository is created built on research, evaluation, sharing of experiences among E-Learning implementing institutions, and the establishment of E-Learning units. Ongoing research must be carried out in iterative fashion to improve upon what is learnt. Both students and teachers must be researched on and their concerns are taken, studied, analyzed and solutions identified and implemented. Where this is not done, the implementation is bound to fail in time.

ii. Economy and funding- There is the need for economizing and funding of E-Learning project both with the human resource development and technology needed. There are some who argue for getting a return on investment and cost sharing for E-Learning projects. The E-Learning implementation cannot be kept aside once installed in an organization or institution, it asks for regular maintenance and updates with evolving time and technology which again ask for fund raise and financial support. Further, funding looks after staff (E-tutor, developing team, maintenance group), contents repository, and regulatory bodies; which all binds together as an essential for successful implementation.

3.4 TECHNOLOGICAL CHALLENGES

i. Access- In E-Learning Systems, Having access to advance technology is evidently an enabling or disabling factor. Access implies the physical access to an end system, an internet connection, the reliability of the connection and bandwidth to access the full range of the required e-content (Burn & Thongprasert, 2005) [11]. In developing countries, many individuals and institutions have little or no access to computers and other technologies like the internet. Where the contents can be disseminated via CDs, they do not have the means of reading the content. This also is another critical challenge to the successful implementation of E-Learning in developing countries.

ii. Cost- The cost of the technologies needed in setting up the E-Learning system is considered a limitation to the successful implementation of E-Learning. This factor has been discussed where there is the need for affordable and low-cost ICT alternatives such as television, radio and telephones, and lower user charges. There is the notion among many Ghanaian individuals and institutions that technology is expensive. Research, however, shows that open source technologies also exist and function equally effectively as proprietary ones. Where funds are unavailable for proprietary E-Learning systems, open source ones could be resorted to. The cost here also looks like they have been blown out of proportions as little research exists to show actual costs. This factor often scares many an institution from even thinking about implementing E-Learning.

IV. DISCUSSION

In the discussion above, it is obvious that E-Learning holds huge potentials for developing nations. It can help absorb the increasing number of qualified students seeking admission year in and out, it can provide a rich source of current and updated information relevant to the needs of employers, enhance the teaching and E-Learning experience, and also provide the opportunity for life long E-Learning. Through E-Learning, a true knowledge economy can be developed where people are increasingly and constantly educating themselves. Through the availability of current research in relevant subject areas, the nation would have the requisite human resource needed for accelerated development.

Students would also derive satisfaction from flexible E-Learning opportunities which can afford them the opportunity to work and earn a living at the same time as they educate themselves. With a higher literacy rate, the nation stands the chance of achieving its development goals through the successful implementation of E-Learning. There are the possibility developing countries leapfrogging developed nations in this area (successful implementation of E-Learning) if the challenges discussed above are eliminated or limited.

Above elaborated challenges are practically faced and recorded as a suggestion and feedback to uplift standards of E-Learning system, especially in developing countries [12]. However when so many challenges are marked, then the country faces severe challenges in implementing learning system despite the benefits that could accrue from it. Looking carefully at the challenges, they could be further classified into government (national) challenges, institutional (local) challenges or individual challenges.

An empirical research using action research, an E-Learning project is beneficiary to identify and analyze factors that influence a successful implementation of an E-Learning project.

V. FUTURE WORK

As an outcome of literatures, strong base has been built up to understand factors that hinders E-Learning to cover-up entire education trend especially in developing country where fight for technology is a hot issue. A survey can be carried out to study the position of the government or inclination of population towards E-Learning in order to determine the potential for development; while interaction with individual or institutions who are already implementing E-Learning System will be of great help.

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