Critical Success Factors of E-learning Implementation at Educational Institutions

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Abstract
With the advancement of technologies, students or learners are increasingly having easy access to electronic media, thanks to the availability of electronic devices such as laptops, tablets and smartphones. This has prompted many educational institutions around the world to adapt to the current lifestyle of learners, by switching teaching and learning methodologies from traditional classroom set-ups to those that embrace electronic formats. As a result, e-learning has become the buzzword in many educational institutions. However, for various reasons, the e-learning agenda of many institutions has yet to achieve its desired objectives. Such a failure could potentially result in detrimental long-term implications towards the institution, including loss of significant financial and manpower resources. This paper reviews studies of e-learning implementation and discusses critical success factors to provide some insights for educational institutions embarking on e-learning.

Key words: Education, e-Learning, implementation, success factors

INTRODUCTION
The evolving trend in information technology (IT), especially in the recent decade, has had a huge impact in the field of education. The advancement in IT and the ease of access towards such IT applications has enabled the adoption of IT elements in education to a great extent. In fact, in recent years, e-learning has become a prominent aspect of teaching and learning at educational institutions, which include schools, colleges and universities. This is evident through the higher allocation of resources for e-learning at such institutions. Furthermore, it was also reported that institutions with higher e-learning adoptions had higher student enrolment (Liaw, 2008). In the global arena, e-learning is fast becoming a well-received medium for education and training. Many educational institutions have made significant investments in e-learning systems (Chawla & Joshi, 2012). As such, it is crucial that the design and implementation of the e-learning
environment, system and processes are critically assessed to realise its full potential.

E-LEARNING AND ITS BENEFITS
E-learning is generally referred to as the use of electronic media or devices for the purpose of education, i.e. teaching and learning (Teo, 2011). Roffe (2002) defined e-learning education as the way in which people communicate and learn electronically. E-learning can be seen as a multifaceted approach with a wide range of systems and methods (Clarke, 2007).

Indeed, e-learning has gained tremendous attention due to its importance towards the development and improvement of education. According to Newton (2003), the use of IT in education will improve access to education, and at the same time, enhance the quality of teaching and learning. Hence, educational institutions have to be well-versed in e-learning to stay competitive and relevant.

Additionally, e-learning also enables learners to progress at their own pace (Rao, 2011). As each person’s learning styles and ability differs, e-learning allows learners to digest the information in a way that is comfortable and acceptable to them, hence enhancing the learning process. In fact, Simonson, Smaldino, Albright and Zvacek (2009) stated that the most commonly cited benefit of e-learning is the feature of flexibility that allows learners to learn at anytime and anywhere at their convenience. On top of that, e-learning also facilitates better delivery and allows greater collaboration with experts and peers (Pillay, Irving & Tones, 2007). Communicating with experts and peers in a flexible basis significantly enhances learners’ experience.

SUCCESS FACTORS IN THE IMPLEMENTATION OF E-LEARNING
Like any other technology adoptions, the successful implementation of e-learning must take into consideration various factors. Many past studies and research have investigated these factors and the following are some of the prominent factors frequently cited.

The E-learning Environment and Infrastructure
The institution offering e-learning activities must be well-equipped to support the functions of e-learning. E-learning infrastructure include all the necessary hardware and software required for the operationalisation of e-learning. Mehlinger and Powers (2002) found that a lack of sufficient infrastructure discourages educators from integrating technology in their teaching. Teo (2011) has also cited that the inadequacy of technical support is one main contributor to the failure of e-learning, and found that skill training and administrative support are very crucial in influencing educators to adopt technology. Similarly, educators also require the support of IT specialists to design the course, as it could be too cumbersome or time-consuming for the educator to master the necessary IT skills through training. Furthermore, educators should also be equipped with the latest or necessary IT gadgets for him/her to explore the vast variety of applications and
features that could be exploited for e-learning. The lack of such support or resources will eventually discourage the motivated educator.

**The Learners’ Point of View**

IT infrastructure is one of the main determining factors in achieving a successful e-learning system as it has the ability to impact user satisfaction (Alsabawy, Steel & Soar, 2013). Learners must be convinced that the infrastructure is conducive for them to engage in e-learning. Learners should have ready access to such online content without much hassle. Ideally, an avenue should be made available to address the technical issues faced by learners in the course of e-learning.

This support is especially needed when e-learning is still at its infancy in the institution. Specifically, arising technical problems should be handled swiftly and appropriately to the satisfaction of the complainant, so as to encourage the continuous usage of e-learning, and to prevent the spread of negative word of mouth to the rest of the teaching and learning community. An issue or problem log should be maintained for future reference or subsequent implementation phases of e-learning initiatives.

With the necessary support, guidance and assistance in place, chances are high that the e-learning community, educators and learners alike, will perceive the environment as suitable for e-learning. It is therefore unavoidable that capital investments and the related operating expenditures to sustain the infrastructure must be suitably allocated to ensure the ideal infrastructure is made available to support an institution’s e-learning agenda. However, Ettinger, Holton and Blass (2005) cautioned that the implementation of e-learning should be done on a small scale during the inception stage. This is to avoid costly mistakes and unnecessary wastage as the institution is still at its learning stage.

**The Attributes of Educators**

Educators, tutors or course facilitators play a vital role in the implementation of e-learning. They are the key players in designing and delivering e-learning content. The educator can inspire learners through interesting and interactive content in their e-learning activities. Unlike a traditional classroom where the role of the educator is to provide knowledge to students, e-learning initiatives require the educator to act as a facilitator, guide, coach and mentor (Teo, 2011). This because in an e-learning environment, learners are expected to make use of electronic means for learning, and thus are likely encouraged to explore the internet for more knowledge. The knowledge exposed to the learners is potentially far beyond the knowledge of the educator himself/herself. However, this does not put the educators in an inferior position. The synergy between the educator’s knowledge and internet information can be harnessed to the benefit of the learners. This provides a whole new experience of learning compared to the traditional classroom set-up.
**Attitude of Educators**

It is important to note that course educators or facilitators in an e-learning environment are responsible for the smooth running of the course. They must demonstrate certain behaviors to keep learners engaged in an e-learning environment. These include, among others, the need for speedy and constant interaction with the learners. The facilitators have to devote sufficient time to attend to queries, concerns and any uncertainties raised by the learners. A delay in response tarnishes the satisfaction level of learners and will likely result in their disinterest in the course (Arbaugh, 2002; Thurmond, Wambach & Connors, 2002). To this end, quick feedback is needed to maintain the momentum of curiosity that the learner has towards the course content. If such a discussion is done through an online forum platform, where the questions and feedback are made known to all learners, quick responses prompt the participation of peers towards the discussion as well, thus creating a virtual community of interaction among the participants.

**Presentation and Delivery of Course Content**

It is equally crucial to assess learners’ point of view apart from that of the educators’. The mode in which the course is presented and delivered electronically has to be sufficiently interesting to draw the learners’ attention. A well-delivered course has a positive impact on students’ perceived usefulness towards the course (Shen, Laffey, Lin & Huang, 2006). Incorporating a myriad of teaching and learning tools allows the full exploitation of instructional technology that can improve the learning process (Peled, 2000).

**Profiling of Audience**

Apart from technology, the course should also be designed in a way that accounts for the learning styles of learners. Unlike traditional classroom environments where student numbers are limited by capacity or student-teacher ratio, e-learning enables a wider range of students or learners. This creates an issue for the educator due to the broad range of learning styles, as each learner has his or her own needs in terms of intellectual level and cognitive traits (Kurilovas, Zilinskiene & Dagiene, 2014). By profiling the learning styles of the targeted learners, the course could be tailored more appropriately to enhance the learning of an individual (Evans & Waring, 2006), and thus maximising their satisfaction.

**Attractiveness of Course**

The failure of many online learning courses could be attributed to their inability to capture the interest and attention of learners due to unattractive content. Therefore, any course should then be designed in an appealing manner, which often requires the expertise of an IT or digital design specialist. Such expertise could also be tapped to enhance the flexibility of the e-learning platform. Allen and Seaman (2011) found that students increasingly demand for availability and flexible options when it comes to e-learning. Learners must be enabled to access e-learning content through various devices such as laptops, tablets and even smartphones at their convenience. This is crucial to maximise the e-learning penetration rate of an educational institution.
Cultural Diversity
In culturally-diverse institutions, the design of e-learning courses must take into consideration the impact of diversity on its acceptance and adaptability. Cools, Evans and Redmond (2009) suggested that cultural differences influence our teaching and learning styles, and the assumptions we make about learners. In view of this, it will be a challenge for course educators to design an e-learning programme or course that caters to learners of all cultural backgrounds. Moreover, many of the major learning style models today originated from Europe and North America (Coffield, Moseley, Hall & Ecclestone, 2004). An e-learning course that may work in Western cultures might possibly receive much less attention in other parts of the world. It is therefore important to assess the sociocultural facet of learners in multicultural institutions.

The Need for Blending
Spanjers, Konings, Leppink, Verstegen, Jong, Czabanowska and Merrienboer (2015) found that on average, blended learning is more effective and attractive than traditional classroom teaching. During the initial implementation stage of e-learning, it is important to blend the course delivery. Learners should be exposed to e-learning in a progressive manner. They may face adaptability issues with the sudden change from a traditional classroom environment to a full-fledged e-learning environment. For a start, the course delivery may include non-e-learning or traditional teaching and learning elements. Such a blend helps learners to get accustomed to the e-learning environment.

The Role of Change Agent
One of the most significant catalysts for organisational change is technological advancement (Lewin & Gold, 1999). However, changes are not always perceived positively within an organisation as people are comfortable with how things are usually done. E-learning revamps the entire mechanism of education. Educators and learners might insist on traditional brick and mortar classroom style, as they have yet to experience the new e-learning environment. In fact, research has suggested that educators’ resistance to change is likely due to cognitive biases (Halpern & Hakel, 2003). In an effort to minimise resistance, all stakeholders involved in e-learning must be supported substantially through constant communication, promotion and marketing (Ettinger et al., 2005). In this regard, the existence of a change agent is instrumental. The change agent, be it inhouse or third party, has to focus on making e-learning as uncomplicated as possible (Sharma, 2010). It is the change agent’s responsibility to constantly communicate and engage with all the stakeholders, educators in particular. For e-learning to work, educators need to believe that e-learning will further ameliorate educational institutions (Self & Schraeder, 2009).

Composition of Change Agent
The change agent can be a team of e-learning experts that needs to be set up in the learning institution. These change agents need not necessarily be senior management staff
(Hesselbarth & Schaltegger, 2014) but needless to say, there should be strong support from the senior management of the institution for this team of e-learning experts to carry out the programs and activities they deem fit and necessary to push the e-learning agenda across the institution. The team should consist of members who are well-versed in the area of information technology, with sub-specialties in areas of multimedia design and preferably, programming skills. These skills are needed to complement the educators’ subject matter knowledge to design a well-received e-learning course.

CONCLUSION
The discussion of this paper is useful for policy makers of educational institutions in considering and evaluating the implementation of e-learning. For institutions already on the e-learning route, the contents of this paper can also serve as a self-assessment tool to measure the adequacy of efforts in improving e-learning initiatives.

In short, e-learning offers tremendous benefits and opportunities to educators, learners and the institution as a whole. The global trend of moving towards e-learning is gaining momentum in many countries and for this reason, it is wise for educational institutions to place e-learning as a priority in their agenda. The implementation process requires detailed and careful planning, execution and maintenance. In order for e-learning to be successfully implemented, key factors such as infrastructure and environment, attribute of educators, delivery of course contents and change agents ought to be considered and adapted appropriately.

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