

Perspectives and Challenges: Review of the Debate on the Integration of E-learning in Education

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Abstract: - With the rapid growth of E-Learning programmes in the education sector, many educational institutions integrate E-Learning mode as an option to better serve students' needs. E-Learning has been growing up in today's technology generation; therefore, there is a need for evaluating this new learning style across the different educational field. The current review highlights the main factors, issues, and point views of the use E-Learning with students. It attempts to discuss the benefits and challenges of E-Learning with different students and in various contexts. Some valuable suggestions for researchers and the direction of future research in the field of E-Learning have also been discussed.

I. INTRODUCTION

During the last decade, the education system has been exposed to a new learning style, which is different from the traditional one. This new learning style is conducted online and referred to as E-learning in the literature. This E-learning style uses technological advancements inside and outside classrooms, and has been an effective learning style in today's classrooms. This emerging learning style is, to a great extent, affected by the non-stop developments in the technological domain including software, programmes, applications, and many other technologies. This rapid growth of technological devices facilitates content learning between teachers and students. With such technological advances, students rely only on the technological devices to communicate with their instructor as well as peers. They not only can have classes, lectures, or training sessions, but can also ask questions and submit assignments at any time of the day and week. In other words, students use these devices to exchange ideas and acquire further explanations from their peers. This evolution of technology use in education breaks the boundaries of time and place that traditional classrooms encounter. E-learning has become very popular approach in today's classrooms due to its effectiveness, cost, flexibility, and availability in most parts of the world. The use of various technological tools allows students to be independent and away from direct observation that traditional learning offers.

II. THE DEFINITION AND FOUNDATION OF E-LEARNING

E-learning is basically defined as the use of any technological tools and services as a learning method. Jenkins & Hanson

(2003) define E-learning as learning facilitated and supported by the use of information and communication technology including internet, computer, telephone, radio, video, and others. It is important to note here that E-learning is also known as online learning. Masrom (2007) similarly defines E-learning as the use of computer network technology to deliver information to individuals. The use of the various types of technological tools is intended to engage students in better interactive learning. Rosenberg (2001) in a specific way defines E-learning as the use of Internet technologies to deliver a wide range of solutions that enhance learning knowledge and performance. Govindasamy (2002) also defines E-learning as the use of electronic media to deliver learning instruction. The E-learning mode is therefore used to facilitate the learning process, and improve the efficiency of learning outcome inside and outside the classroom. E-learning not only allows the interaction between teachers and their students online, rather it is used to break all potential barriers that teachers encounter in traditional classrooms. E-learning, moreover, combines the existing social network applications and software with really low cost, and also allows users to control the utilization of the available content.

Most educational institutions worldwide offer E-learning as an option which enables students to enroll in courses whether they are on-campus or off-campus and even across borders (Raaij & Schepers, 2008). Allen and Seaman (2007) reported that the majority of educational institutions in the US offer online courses for students throughout the year. This pedagogical increase of this learning mode is closely related to the changes in the epistemological foundations of learning in which the adoption of the constructivist paradigms has increased among learners (Palincsar, 1998). These constructivist paradigms adopt the notions of the use of computer-supported collaborative work (Nicholson & McDougall, 2005). These paradigms emphasize that learning emerges from the construction of meaning out of the social interaction based on Piaget's theory of cognitive development which relates to the building of schemas (Brainerd, 2003). That is, Piaget focuses more on the assimilation and accommodation. These schemas enable learners to embrace new information with prior knowledge and in turn accommodate or change the existing belief system. In other

words, cognitive constructivist is able to design courses and suggest the role of teachers in their teaching context where they encourage learners to share their ideas with others, and constructs new ideas from their collaboration and interaction with other people (Maor, 2003). This type of interaction builds a solid learning environment that makes learners feel connected with others and satisfied with the course (Bird, 2007). By interacting and receiving responses in this online environment, learners will have interconnected sense of being, and also create an emotional, social, and motivational component to learning which increases learners' satisfaction with this online learning environment.

III. DIGITAL NATIVES VS. DIGITAL IMMIGRANTS

The spread of E-learning in most educational institutions raises a question about the abilities that enable learners to achieve the expected outcome. Teachers and learners can be divided based on their abilities in using network software and applications. Young learners, compared to their peers and teachers, tend to be radically different in the ways they use current network software and applications (Bennet et al., 2008). Similar to neuroplasticity theory, Prensky (2001) believes that human brain are plastic and flexible, and therefore, subject to change throughout life in response to the changes in the surrounding environment. Consequently, young learners' brains are more likely to develop over time as they grow up in comparison to adult who have already grown up in a world full of new technologies. Those young learners who are born in the technology time, and have the ability to constantly develop are referred to in the literature as 'digital natives' (Prensky 2001 and 2009), whereas those grown-up learners and teachers are referred to as 'digital immigrants'. When describing digital natives, Prensky is not specific about the time that defines this digital generation. Instead, he believes that there is a major gap between the two generations. However, Palfrey & Gasser (2008) suggest that digital natives appear after 1980.

The use of the digital natives and digital immigrants has become popular in most educational and public debates. Those digital natives emerge from young people born in the time when digital technologies entered social life (Palfrey & Gasser 2008, Tapscott 2008). Grown up with computers and other digital devices, this young generation tends to have a natural ability and professional skills in new technologies. On the other hand, older generation, digital immigrants, is characterized a bit behind, and may not be as skillful as the young one. Digital immigrants may not be able to reach the high level of natural fluency of digital technologies.

IV. BENEFITS OF E-LEARNING

The benefit of E-learning has been discussed in many research studies (Carswell, Thomas, Petre, Price, & Richards, 2000; Little, 2001; Shotsberger, 2000). E-learning is normally adopted in most educational institutions in order to deliver instruction to students who are unable to attend face-to-face classes due their remote location (Boose, 2001). E-learning

can support student-centered learning and also help create a collaborative learning environment, which allows students to actively participate in the learning process on their desired pace of learning. Bouhnik & Marcus (2006) surveyed university students who participated in an online course, and listed the following benefits of E-learning:

- Learners have the freedom to choose when to learn
- Learners do not have to depend on the time constraints that traditional class has.
- Learners have the freedom to ask questions and express view point at any time.
- The E-learning context is reliable to teachers providing feedback and answers
- E-learning is convenient to students to review previous lessons.
- The accessibility and availability of E-learning material contribute to self-learning and independent ideas.
- E-learning also allows students to utilize the new required knowledge in conjunction with employment duties and tasks.

Bouhnik & Marcus (ibid) simply categorized the above benefit as follows:

- Flexibility of the material and the time
- Accessibility to the material
- Visibility of the multimedia
- Availability of the data

Compared to traditional face-to-face classrooms, Bates (2005) and Rosenberg(2001) also concluded that E-learning offers several advantages including reliability, accessibility, flexibility, affordability, and controllability to their learning experience (i.e. Bates, 2005; Rosenberg, 2001). Gunasekaran, McNeil, and Shaul (2002) believe that the most common problems in traditional classroom has been time and distance; therefore, using E-learning mode will definitely eliminate these two problems. Utilizing an E-learning mode not only is advantageous to students who are out of the educational site but also to the instructor providing the course or lesson.

E-learning is very reliable in case of emergency and when urgent changes need to be made. In such case, the information and course material can easily be uploaded or modified by the instructor without the need for physical appearance on site. This allows students and instructors to access the most updated information (Kruse, 2006). Consequently, time and money can be saved since the update or change doesn't have to be duplicated and redistributed to students. Thus, students are always kept updated with the most recent information available.

The great accessibility of E-learning is also another benefit that can provide a substantial cost savings to any educational institutions or individual instructors. That means that students eliminate travel time to a remote educational site which will allow them to spend that time more productively. E-Learners

can access their course materials from home, work or wherever they choose, and whenever they choose. This means that students can obtain globally recognized qualifications from any international institution without having to leave their home country. They can also control the pace at which they progress through the materials. Students will also cut some cost savings by using the technology in their own homes, eliminating travel expenses to the site. With today's technology, E-learning allows students to use different technological devices to access the online sessions at any time no matter where they are located. To the extent that some fortunate students can even access classes on their cellular phones (Kruse, *ibid*).

Flexibility is another advantage of E-learning, which allows students to complete their tasks and assignments whenever and from wherever they are. The ability to access any information anytime and anywhere is considered as a key advantage to E-learning (Nucleus Research, Inc. 2001). E-learning also allows students to work at their own pace, rather than forcing them to adhere to fixed schedule. This does not mean E-learners are slower in accomplishing their own tasks. A research study involved two groups of E-learners and traditional classroom learners. This study showed that E-learning group was 34% percent faster on average than the traditional learners (Lawson, 1999). Kember, Lai, & Murphy (1994) found out that flexibility is what makes E-learning attractive to the learners. Bouhnik & Marcus (2006) thought that flexibility is the most appealing benefit of E-learning to most adult learners as it suits their work and family schedules and duties.

Another benefit of E-learning is affordability. This can be beneficial to both students and instructors. Compared to other traditional learning style where an instructor and a room have to be arranged prior to students meeting in the educational site, online courses can be an easy and cheap solution that many students can afford. An online course is inexpensive which means the distribution and instruction costs are minimal. From a business perspective, an online course would usually be cheaper than a traditional classroom or seminar for students (James, 2002).

Another primary advantage of E-learning is that students have control over every aspect of the learning including the amount of time needed for each task as well as the time they have to do that task (Brown, 2001). Featherstone (2006) described this feature of E-learning as the primary advantage to use the E-learning mode. E-learning allows students to control so much of the activity online such as the amount of time needed for practice and learn which means that some instructors' responsibilities have either partially shared with or entirely shifted to students.

V. POTENTIAL DRAWBACKS OF USING E-LEARNING

Having control over much of the responsibility in E-learning may be seen as a disadvantage. Brown (2001) claims that many learners may not use the E-learning instruction time

wisely. That may result in the expansion of the assigned time for each task in the course. When doing some practice or assignment in an online course, students may not be able to resist the habit of browsing other network sites or pages. With the huge amount of social media websites available on the same screen, students may consume more time than required for each task every time they log in the internet, especially if no deadlines are set for each task. This raises a big question of students' commitment and responsibility of E-learning.

Despite some variation and personal goals among them, some students may not read instructions set for the online tasks, or skip some parts and practice sessions. Brown (*ibid*) argues that even though E-learning is an ideal learning more for some students, choices of study time and the effort put toward the learning ultimately predict the performance of students. Advanced students can proceed quickly on assigned tasks without becoming bored with repetitive instruction and without having to wait for other students who may not be at the same level of proficiency and skills. However, those students who may have difficulty with the material may slow down the entire learning process and learn on a pace suitable to their comprehension level without getting frustrated (Kruse, 2006a).

Another notable disadvantage of E-learning is the lack of social interaction. That is, students studying in isolation have to be highly motivated and focused, and possess time management skills. E-learning does not furnish the full educational experience, leaving students to feel a certain element of isolation (Conaway, Easton, & Schmidt, 2005). Without the social interaction skills, students may find it hard to perform academically and cope with this type of learning. Hasebrook et al (2003) argue that E-learning lacks a traditional feature where students and instructors develop a relationship to exchange and facilitate ideas. With this type of learning, it is difficult for students to work without interacting with their instructor and peers. The solution of such a problem can be by creating a human touch and developing a sense of institutional belonging among students as well as teaching staff (Bourner & Flowers, 1997; Daniels, 1996).

Students' proficiency in computer and internet skills can also be gloomy images of E-learning. E-learning requires that all students are able to create accounts, register, communicate, download, and conduct an online test (Dellanna, et al 2000). This places an obstacle in students' performance and outcome. Furthermore, it raises a question of whether or not all students can download or register for an online course regardless of their knowledge of computer and internet skills. Based on that, it is difficult to see how students will effectively integrate into E-learning mode (Hameed, e al 2007). All educational institutions need to think about the type of course content and the required skills relevant to that content when offering any online course. Otherwise, main objectives of the course may not be achieved.

E-learning may not also be suitable and successful with some types of learning. In other words, the type of learning determines whether E-learning or face-to-face is appropriate and relevant. For example, soft skills cannot be taught via E-learning as they require interpersonal skills such as teamwork, leadership, active listening, etc. Walmsley (2003) says that despite its advantages over the traditional classroom, E-learning falls short in teaching these soft skills as they require the interaction of students with their peers and instructor. This interaction allows instructors to provide timely constant feedback and clarification to students. When learning, students may arrive to a position where they need an immediate or urgent feedback or explanation to pursue their learning tasks. This feature of learning may not be as such in E-learning style. Blass and Davis (2003) point out that feedback in E-learning sessions may either be delayed or simply text-mediated on email some time later. They also point out that this electronic mediated feedback lacks the tone of speech that face-to-face communication has. That may raise the possibility of misunderstanding and confusion. Ideally, face-to-face explanation is easier than writing communication, especially when considering that a great deal of human communication is not verbal.

Another potential dilemma of E-learning is the bandwidth. This relates to the specification of the technological device that is used in learning. That is, the higher the bandwidth, the faster the connection is to browse the websites and download the information and audio/video files required for the course. Kruse (2006c) points out those E-learning sites normally utilize many audio and video files which require in turn a high bandwidth. Consequently, students with low bandwidth cannot maintain the learning process. Resistance to change may also be another potential drawback of E-learning. Worldwide, students may not cope with this type of learning they are not used to. Students may regard this change of learning style as inconvenient or as a waste of time, and perceive a traditional classroom with a teacher as the ideal method of learning. This means that the utilization of E-learning requires a change in habits and perceptions among students.

Although controllability is an advantage in E-learning, Brown (2001) found that many students do not use this feature wisely. Compared with traditional classroom where students have human interaction with their teacher and peers, students may encounter difficulties grasping the course instructions and required tasks. Weaver (2002) argues that students by nature are social learners and usually prefer to learn in groups and interact with their peers in face-to-face mode. Despite the various chat rooms designed for that course and email communication with their instructor and peers, Weaver et al (2006) noted that students may not be motivated enough to successfully complete the course. The absence of face-to-face interaction is considered as most serious disadvantage of E-learning (Anstine & Skidmore, 2005). Many students feel that E-learning is that the valuable aspect of students and

instructors having classroom discussion is lost (Brower, 2003; Murgolo-Poore, M. & Pitt, L. 2001). Nisar (2002) argues that E-learners are unable to engage in classroom discussion or debate of content in after-hours setting. Berger and Topol (2001) argue that students who experience face-to-face learning are more satisfied and that they only accept E-learning for the sake of convenience. The technological advances nowadays are really high; however, students may encounter some technical difficulties at some point during their online course which will definitely leave them behind their peers (Gibson, 2006). If these technical problems appear in a live session, students will miss some portions of the session.

Another negative side of E-learning is the overloaded information uploaded on the learning platform. Students may find it very hard to sort through the large amount of material available in the learning process. Therefore, staying focused on the assigned exercises at hand is seen as a big challenge, especially with many other avenues of learning available on the same screen. Liawand Huang (2002) indicate that when information is overloaded on the online platform, learning time also increases and learning motivation decreases.

VI. LEARNERS' MOTIVATION

There have been a number of research studies that examined students' motivation and achievement of E-learning. Carnevale (2005) reported the results of a study that there is a constant growth of students enrolling in E-learning courses. That study showed that there was a growth of 7% of students enrolling in E-learning courses at degree granting institutions. Motivation is an important variable to E-learning student success (Moore & Kearsley, 2005). E-learning students are more likely to have an independent learning style and clear self-directed behavior (Terrell & Dringus, 1999). Merisotis and Phipps (1999) pointed out that the most important factors that influence student success is student motivation and the nature of the learning tasks. Student motivation can be either intrinsic or extrinsic. The intrinsic motivation is defined as "the doing of an activity for its inherent satisfactions rather than for some separable consequence" (Ryan & Deci, 2000, p. 56), whereas the extrinsic motivation involves the performance of an activity in order to attain some separable outcome such as a certificate or license. Being independent in the E-learning mode means students have a high level of autonomy. Most research studies on the effects of the learning environment on intrinsic motivation has focused on students' autonomy (Ryan & Deci, 2000). These research studies provide evidence that students whose behavior is mostly internally regulated have more interest, confidence, excitement, and better performance with a better conceptual understanding of the material than those who are mostly externally controlled (Deci & Ryan, 2000; Grolnick & Ryan, 1987).

VII. THE NEW GENERATION OF LEARNERS

There is no doubt that young learners are different in the way they learn and use technology compared to adults. This means that young learners actually think and use the different technological devices in a shorter amount of time. E-learning pressure to move learning from passive or receptive modes of learning to active modes of learning is in opposition to the formal typical way of schooling (Beaugrande, 2002). The speed of change in learning ways and tools increases every year. This rapid change requires a mutual change of the type of learners to be the technology generation. Those learners are described as the digital natives in comparison to the digital immigrants who lack skills of the technological devices. Those digital learners spend less time reading or writing compared to the time they watch television and play different computer games. Technology has prepared E-learners to think differently than their parents and teachers who may not be familiar with this type of learning. In today's generation, young learners have a much wider view of the world than their parents. Generally, interactivity of E-learners includes turning pages through clicking on hyperlinks that is based on feedback where an action of one learner results in other actions by other learners. In this back-and-forth exchange, learners reflect on what they see or read on the screen.

Due to the fact that E-learning delivers individualized instruction, E-learning providers, however, have to take into account a number of variables such as learners' experience with and knowledge of the subject matter, learning preferences, reaction to technology, emotional state, gender, context, and culture. These variables exist in the E-learning mode. Good teachers consider these variables when they facilitate a particular learning task. E-learning mode rarely takes into account the role of learners' emotions and motivation in the learning process as learning is strongly tied to emotions which are linked to learners' consciousness (Damasio, 1999). Many other studies show that autonomy-supportive teachers catalyze in their students greater intrinsic motivation curiosity, and desire for challenge (Deci, Nezlek, & Sheinman, 1981; Ryan & Grolnick, 1986). In other words, students lose initiative and do not learn when they are overly controlled, especially when learning is complex (Benware & Deci, 1984; Grolnick & Ryan, 1987). Grolnick & Ryan (1987) and Miserandino (1996) indicated that such a controlling learning environment decreases intrinsic motivation and results in poorer performance. On the other hand, online education is more likely perceived positively and are intrinsically motivated when there is no need to travel and join the learning site (Klesius, Homan, & Thompson, 1997). Compared with the traditional classroom, learners are more likely to involve in online education more deeply and thus experience new knowledge acquisition processes (Hardy & Boaz, 1997).

VIII. WHAT IS THE FUTURE OF E-LEARNING?

Based on the current review, it is obvious that technology is becoming the norm in most educational institutions. As a consequence to this educational revolution, teachers and students will continue to play important roles in the way classroom operates. With such a tremendous way of learning, there will come a time when no one join such boring classrooms. Instead, students will have the wide range of possibilities of these new educational tools. For example, 'story-telling' does not have to come from a 'teacher' but can also be seen or shared by peers online. Not only can 'story-telling' be seen online, but students can also be in the story and take part in it. The upcoming future students will have new educational experiences created by the various types of technologies embedded in their education system. Much of the collective educational knowledge resides somewhere on the different online tools. Such educational environment has become part of the E-learning mode. Therefore, educators need to find out the different possibilities of the new technologies with true interactivity in developing E-learning (Meadows, 2003). As soon as students become familiar with the technological device, this device will become more beneficial in providing the relevant educational E-learning material and knowledge. The technology revolution is replacing traditional teaching in schools with new flexible learning environment that increases opportunities for collaborative work among students.

The differences between traditional classroom learning and E-learning can be an area of research interest, especially in a context where learners are not well acquainted with technology. Future studies should investigate even other relevant variables such as participants' field of study, age, gender, demographics, educational background, etc. As universities all over the world have been offering new course through advanced technologies as an E-learning option, there should be new research studies determining relevance and the effectiveness of E-learning in different contexts. Based on the above review, there seem to be a number of issues of retention of material and participants' social needs that can also be fertile area of investigation.

IX. CONCLUSION

As we live in a time of change, technology has been rapidly and tempestuously changing, and so it is unpredictable to know how learners will perceive this change in their education. There is a common tendency for individuals and educational institutions to resist change. Engaging in E-learning is a continuing challenge that requires time and commitment. Though, E-learning may in fact make the process of learning significantly better, and play a key role in the reform of any educational system.

The current review shows that previous students' experience of E-learning results in differences in their perception of E-learning environment. Students with no experience with E-learning style was found uncertain about many features of

many online learning tools. Other experienced students were very satisfied with this type of learning. This indicates that experience and mastery of the various technological devices determines students' satisfaction with the E-learning style. In other words, the more experience students have, the more satisfied they are with E-learning and vice versa. The current advances in technology has reached the point of being a major component of curriculum in all education institutions. Many learning obstacles that encounter students to finish their education can be solved by E-learning implementation.

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