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The Barriers of using Education Technology for Optimizing the Educational Experience of Learners

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Abstract

The paper will discuss the impact that education technology has on the teacher-student experience. Does learning really take place or has the educator been removed from the teaching experience and environment and does this impact on the learning environment. The study will conclude that technology can enhance the teacher-student experience; although the educator-student learning experience cannot be replaced by technology, due to human and social elements which technology lacks. Education technology does not have interpersonal interaction and an increase in technology can lead to less interest within teacher-student relations. Communication constitutes of 80

Index terms— barriers, educational change education technology, instructional, technology, teacher learner education, teaching and learning technology integration

1 Introduction

he communication and information age has progressed in ways never used before in society, work environments, institutions and people's lives through the use of mediums such as laptops, iPhones and iPods. The information age has led to an increase in the use of technology within all spheres of society, resulting in education in stitutions main streaming programmes which prepare learners to be compatible with the use of technology into their curriculum. Cradler **??**2003); **??**Schrum and Glassett, 2006) mentions that there is not sufficient evidence to show on the impact of education based technology on learners.

The purpose of the paper is to investigate the challenges that hamper the potential of education technology. The literature review will discuss the benefits and challenges that prevent for effective and efficient technology implementation. Computers were placed in schools from the early 1980s and will continue to impact on teaching and learning into the future, as Dawes (Bingimlas, 2009) notes that technology will offer more effective communication between instructor and learners. Berge and Mrozowski (1999) mention that education technology helps people become critical thinkers, independent researchers and allows for creativity and new ideas, which is aligned to new global professions. The paper will discuss the challenges to the use of education technology, in an effort to prescribe recommendation which allow for greater effectiveness of this type of education and ensure that it makes a meaningful contribution in the future and becomes used to embitter learning.

The Learning Age took off in 1998 mainly due to government's motivation for greater involvement, modernization in curriculum, inclusion of learners and greater accessibility. The global age led to a demand for new skills associated with emerging professions, distance learning was on the increase and the widespread use of technology in education. The use of technology in education was born as a result of the communication revolution which was used alongside traditional teaching and learning to bring about more effective instruction to learners (Commission on Instructional Technology, 1970) (Earle, (2002). The previous use of technology focussed on hardware such as television and assumed that integration would occur therefore pedagogy was ignored, lacking the integration of technology and content related to the curriculum. Bretag (2011) notes that education technology has led to a reconstruction and not re-modelling, as teachers are now instructing through the use of powerpoint slides as opposed to chalk boards. Education institutions use technology as a means to

build onto existing methods, as opposed to optimally utilising the technology in more meaningful ways this is demonstrated when learners use laptops but limit their use of functionality on the laptop. Technology when used for educational purposes hould significantly impact on the learning experience for both learners and teachers. This has not been the case due to the barriers such as time constraint, access to technology and no clear integration of technology and education that persist.

T II.

2 Main Problem And Research Objective

Technology will continue to dominate many aspects of human existence and if integrated optimally can only further ensure better teaching and learning takes place in the education experience of learners. There is a need to investigate whether education technology impacts on the teaching and learning experience in a positive way in comparison to traditional learning.

The study focused on how education technology, through teaching and learning can ensure that the students have an optimal education experience and make a significant contribution to the existing literature. The research answered the following key research questions : Has education technology been successful in creating an optimal educational experience for learners? What is the result of education institutions using technology as a means of learning and its effects on the education experience of learners? a) Primary Objective Education technology is a study and practice which facilitates learning in order to create, manage and use technology to improve teaching and learning **??**AECT, 2004). Education technology and learning technology has become an important aspect in skills development globally. In such education based technology has a number of barriers for all stakeholders involved. If the barriers are overcome, it will impact positively on the curriculum focussing on clear achievable goals which allow for it to be easily accessible to student.

3 b) Secondary Objectives

The following secondary objectives were identified in order to achieve the primary objective:

? To conduct a literature review which will assist in identifying what education technology entails and its learning method? ? To review current empirical research on the topic ? To summarise, draw conclusions and provide recommendations based on the empirical results.

4 III.

Literature review a) Conceptual framework.

Berge and Mrozowski (1999) and Bigmilas (2009) define a barrier as a restrictive feature that disturbs the application of education technology and is therefore a disabler. Information technology is defined as hardware and software used to implement education and is often associated with computers. Earle (2002) defines technology as a technical method of achieving a practical purpose, by using machines. More specifically education technology or instructional technology, used interchangeably, has common interest in human learning and teaching. Perkins (1992) defines technology as the retention of knowledge. Cassidy **??**1982) notes that instructional technology improves the effectiveness of learning and uses social and machine technology. Gentry (1995) define education technology as orderly and universal involving strategies and techniques from behavioural and physical science to resolve instructional problems. Hence education technology is the use of machines in the teaching and learning experience. Su (2009) notes that technology can be used for integration and transformation purposes. The integration of technology ensures that technology enhances current learning, whereas transformation allows for technology to teach learners things which were not taught until new technology was discovered. The paper agrees with Su's notion that technology should be used to transform education alongside traditional teaching methods; this can only further enhance education instruction. The concept of learning has evolved over time and the Association of Educational Communication and Technology (AECT, 2004) notes that learning currently uses different methods of technology in order to retain knowledge and improve the performance of the learners.

Learning mediums that have been used include through virtual learning environment (web based); online learning (web based); blended learning (combined education technology and traditional teaching); ubiquitous learning (computer based) and mobile learning (pagers, laptops and Wireless Local Area Network)(Cather all, 2005). The mediums of learning identified are computer-based; video conferencing; satellite, webcast and CD-ROM (The Economist, 2008).

individual, this can impact of individual learner progress because the teacher has to attend to a class of students; learners are placed in classes according to their age and the content and context is age specific. The content is presented in a personal manner and students can have access to the educator immediately, there are not stumbling blocks such as the absence of access to technology or a lack of motivation by the learners which hampers the effectiveness of the knowledge transfer process.

Constructivist learning entails greater engagement and interaction for students, the teacher is only a guide and enquiry is constructed by the learner. The content and progress is based on individual needs as in the case of using a personal computer. Learners interact across age groups either via peer learning or individual learning and due to technology student have greater interactivity and engagement (Su, 2009) through chat groups and social mediums. This types of technology based learning can occur at any time and Traditional teaching and learning

takes place when the teacher instructs learners and student ask questions based on the teachers directives, these learning methods can be interactive and engaged. The content given to students is for the group and not for an place is self-paced or can be content-centric with little teacher-student interaction or learner-learner interaction andis learner-focussed where the learner navigates learning. This type of learning has replaced traditional face-to-face learning, it is not text-based learning and the instructor does not have to be present in the same room, as the learner receives technologically-based learning such as E-learning **??**Koller et Based on the traditional and constructivist learning models it is clear that both methods have strengths, however traditional teaching is also interactive and engaged, is content-specific; entails peer learning and allows for the educator to motivate the students to work harder and challenges faced in learning can be addressed immediately, creating an added advantage.. Tell and (2001), Grimus (200), Bradford et al **??**2000) and Wong (2006) (Bingimlas, 2009) noted that traditional education alone does not prepare students for the globalised technologically advanced workplace. Trotter (1997) argued that there is no evidence to support that technology improves student achievement and Viadero (1999) suggests that technology alone is not enough (sited in Earle, 2002). Bronner (1997) noted that there has been an"intellectual backlash" as technology is used for stylishness and glamour, has no return on investment and the curriculum is often not integrated into its mediums. Earle (2002) noted that when technology was used appropriately student achievement progressed.This highlights the need for greater research on content integration into education technology.

b) The Barriers of Education Technology Becta (2003) (Bigmilas) argues that the implementation of education technology varies in different environment, curriculums and it based on whether it will contribute to making education effective in a meaningful way. **??**atherall (2005) fragments education technology into twocategories: namely the student barriers whichinclude a reduction in contact with peers and the educator as technology replaces the educator. There thus becomes a need for more self-discipline by students as a result of this, and there is an increase in student demands such as special requirements needed by students for instance printing costs. The educator barriers associated with learning include how responsive the system is towards academic input; learning support availability; cultural implications impact on the attendance of learners; an information overload due to the internet, plagiarism and security threats are on the increase and not all subjects can be taught via learning such as Humanities and Arts.

Hendren (Jaffer et al, 2007) that education should be driven by context and content objectives and not by technology. These scholars also note that technology can impact on teaching and learning positively, although it is not the only means and the successes of the instructional learning experiences must be identified and the areas where there is not significant impact must be omitted. The paper suggests that if learning goals on content are aligned to technological output, the result will be favourable for the learner.

5 Table I : The barriers of education technology

Cost implications; technology is disruptive; entrenched organisational culture focussing on traditional learning; technology can disrupt classes when opened in class; availability and access to information can lead to increased cheating and plagiarism (The Economist, 2008). Dawes (Bingimlas, 2009) holds the view that change, might not be easily acceptedthere will be some degree of resistance Challenges around the those who have access to this technology an those who don't (digital divide) ; differing levels of computer literacy levels; less involved due to decreased teacher-learner and learner-learner interaction in the learning experience continue to persist (Koller, et al , 2001). Barriers of technology include lack of motivation due to poor social skills, poor computer skills and a lack of availability of access; a lack of time and class time and a lack of motivation and social awareness and school culture **??**Catherall, 2005). **??**ingimlas (2009, 1) said that the major barriers of education technology include a lack of confidence, competence and a lack of access to resources. Misalignment between teachers and administrators creates difficulty for teachers (Park, Lee, Blackman and Belland (2005) Contributes to learning content and increases learner modes of critical thought ensuring students' progress at their own level, such as through the use of multimedia applications, this allows for greater communication and collaboration skills, writing and research skills which are all the requirements for the fast paced global economy that exists today. Thus becomes critical factor when they become professionals in their respective fields. The digital divide still exists ; educator challenges on training and challenges on support and infrastructure and accommodating disadvantaged individuals (The Economist, 2008) Higher wearing a way of technology exists, high start-up costs, lack of proven results and credibility (and teacher support and infrastructure continue to prevail (Koller et al, 2001) Catheral (2005) identifies challenges around infrastructure problems, upgrades are needed; integration and technical support problems.

Bennet (1997), Ginsberg et al (1998), and Muler and Olsen (1995) (Krysa, (1998) note that computers are not fulfilling their full potential as they substitute traditional teaching as opposed to implementation for significant change. Krysa (1998) notes that technology can make a significant contribution to eradicating illiteracy and for the handicap due to its advancements. The paper holds the view that education technology can enhance current teaching and learning if integrated into the curriculum effectively.

6 IV. Research Design And Methodology

Firstly, the study conducted a quantitative study on the nature of technology based learning and how this practice contributes to teaching and learning. Primary and secondary sources were used to conduct desk research; library sources; internet sources; documents reports; websites, and papers. Secondly, both teacher and learner technology integration barriers have been identified in an effort to increase the effectiveness of this practice. This aim of this study was to investigate how technology based learning contributes to teaching and learning, have education institutions that practice this been successful in their education goals?V.

Findings and conclusion a) Findings.

The findings revealed that when technology was used alongside traditional teaching and learning it impacted positively on the education experience of the learner. This resulted in student's positive outcomes such as developing independent workers; problem solvers; better communicators and collaborators and researchers. However there is scope for a study which focuses on curricular content and teacher motivation withtechnology and its impact on education in a meaningful way.

7 Table IV : The outcomes on education institutions using technology

The digital learning imperative concluded that 45 percent of student who used technology to solve problems, 42 percent used technology to for experiments or be creative 17 percent developed demonstrations and 13 percent designed and developed products. The Barriers of using Education Technology for Optimizing the Educational Experience of Learners Kozma (2003) Outcomes for 6 th study: measured understanding, reading and language, promotes reflection focusing on multiple perspective and greater thinking.

Outcomes for 7 th study: better math's results; better learning. The study has examined how technology shapes the future of education. Many continue to acknowledge the potential that technology has on education. There unfortunately is no going back as we live in a technological age and technology has become acceptable and institutionalized.However the challenges facing education technology vary and will continue to affect teachers and learners. Laurillar (2001) and O'Hagan (1999) (Katsifili, 2010) illustrate that education technology can impact on certain teachings and learning objectives, if it is aligned to the aims of the education experience. It will therefore contribute to the teaching and learning needs and not merely on using technology for the sake of it (Jaffer et al, 2007).

8 VI. Recommendations and Implications

or Implications and Future Research

The paper agrees with (UCLA, 2007) recommendations that there is a need to investigate student engagement, information literacy and student learning and course design in the education technology future plans as not enough research has been done.Stone-Wisker (Schacter, 1999) said that education should be placed first before technology and the education gaols should drive the process, if not technology use becomes ineffective..Cuban (1986), Earle (2002) , Wagner (Earle, 2002) and Roby (1992) noted that technology integration entails ensuring that pedagogy and technology need to be aligned for sound outputs, therefore instructional content and practice are important in overcoming the barriers. Brandsford et al ??2000), Kozma (2003) and Bingimlas (2009) recommend that teachers become the driving force in ensuring technology integration for meaningfull change. Fullan (2000) (Earle, 2002) noted that teachers must become experts in pedagogical design which will ensure that the potential of technology use in education becomes recognised.Based on the above technology will remain well into the future and has positively left its mark in certain fields, surely if used in collaboration with traditional teaching can change and shape the face of teaching and learning well into the future. [1]

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Figure 1:

needs
infrastructural demands and support continue to hamper the effectiveness of technology, particularly in less developed countries.

of technology, challenges,

Figure 2:

[Association for Educational Communications and Technology (AECT) 1977.The definition of educational technology] *Association for Educational Communications and Technology (AECT) 1977.The definition of educational technology*, Washington.

[Berge and Mrozowski ()] *Barriers to online teaching in elementary, secondary and teacher education*, Z Berge , S Mrozowski . www.http//:Themoderatorshomepage 1999.

[Mudur ()] 'E-learning Prospects and challenges'. S Mudur . *Eleltech Journal* 2005.

[Su ()] *Effective technology integration: Old topic, new thoughts*, B Su . 2009. Monterey Bay, USA.

[Park et al. ()] *Examining the challenge encountered when implementing problem-based learning in the middle school class room, PowerPoint presentation 17. Perkins, D. 1992. Technology meets constructivism: Do they make a marriage?*, S Park , M Lee , J Blackman , B Belland . http://www.nsba.org16 2005. (in Duffy, T., & Jonassen, D., Constructivism and the technology of instruction)

[Krysa ()] *Factors affecting the adoption and use of computer technology in schools*, R Krysa . 1998. University of Sasktorewar

[Jaffer et al. ()] *International Journal of Education and development using information and communication technology*, S Jaffer , D Ng'ambi , C Czerviewicz . 2007. 3 p. .

[New Jersey 18. Schacter, J. 1999. The impact of education technology on student achievement. Milken Exchange on Education te 'New Jersey 18. Schacter, J. 1999. The impact of education technology on student achievement. Milken Exchange on Education technology'. *Journal of Educating computing Research* Lawrence Erlbaum Associates Inc. 20.

[Catherall] *Skills exchange experience by students in the use of education technology/e-learning*, P Catherall . (Power point presentation)

[Educause ()] *Supporting E-learning in higher education*, Educause . 2003. 3.

[Kozma ()] 'Technology and Classroom Practices: An International Study'. R Kozma . *Journal on research on technology in education* 2003.

[Koller et al. ()] *Technology-based teaching strategies. Social Policy Public Research Association*, V Koller , S Harvey , M Magnotta . 2001. New York.

[Bingimlas ()] 'The barriers to the successful integration of ICT in teaching and learning environments: A review of the literature'. K Bingimlas . *Eurasia Journal of Mathematics* 2009. 5 (3) .

[Schrum and Glasset ()] *The future of higher education: How technology will shape learners. Economist Intelligence Unit, New Media Consortium 21. The Digital learning imperative. 20012. How technology and teaching meets todays education challenges*, & Schrum , Glasset . 2006. 2008. (Research on Educational Technology: Challenges to Implementation and Impact of Scientifically Based Research. Alliance for education excellence)

[Katsifli ()] *The impact of blackboard software on education, globally over the past 10 years*, Katsifli . 2010. Academic Innovation, Blackboard Inc.

[Earle ()] *The integration of instructional technology into public education: promises and challenges*, R Earle . 2002. 42.

[Bretag ()] *Wrong focus: Teachers Centred classrooms and technology*, R Bretag . http://blogs.edweek.org/edweek/LeaderTalk/2011/10/wrong_focus_teacher-centered_c.html 2011.