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RESEARCH ARTICLE

Channeling Contemporary e-Learning Practices at Universities in UK towards 'personalized learning environment'

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Abstract

Research undertaken in the field of e-learning and e-learning systems design and has led to a complete transformation of all forms of education, learning and training. But even then the complete potentials of e-learning with the onset of Web 2.0 has not been explored completely and in some cases the benefits of the existing e-learning systems have been over exaggerated. This article aims to look at what e-learning and e-learning systems have enabled us with? along with looking at some of the concerns surrounding the existing e-learning systems put in place at Universities in UK. Having addressed these questions the intention is to channelize the existing e-learning practices towards formulating a personalized learning environment at Universities using the ubiquitous technologies used in our day-to-day activities.

INTRODUCTION

In last five decades, research has been undertaken in the field of e-learning and e-learning systems design, and that has led to a complete transformation of all forms of education, learning and training which we encounter now in 21st Century (Brown,2000; Garrison et al.,2003; Tanaka,2005; Nair,2013 ; Nair et al.,2013).But today there has been an increase in the use of different internet technologies for conducting our day to day activities along with the delivery of education, training and learning to a wider community of learners around the world (Welsh et al.,2003).

In this digital age, learning opportunities span over a life time right from childhood to all the way to adulthood, young or old. Competencies once gained, needs constant updating to keep up with the changing environments and, with new technologies and trends. E-Learning has the potential to empower us to know more, learn at must faster rate from different sources at a low cost and also harnessing the power of data/information/knowledge (Gunasekaran,2002).

Ideally considering, the definition given by Garrison et al.,(2003),Welsh et al.,(2003), Horton(2001),Alonso et al.,(2005) and, at the practical implications of e-learning and associated systems in the contemporary Universities, e-learning could strongly be looked at as a kind of online learning which takes place within formal environments making use of wide variety of multi-media systems (incl. internet and digital technologies) for creating an engaging and authentic learning experience for its users.

However over the years, the potential of e-learning and systems using e-learning has not been explored completely and at the same time the benefits of these e-learning systems are over-exaggerated (O'Neil,2004).

Here are some examples of the current learning systems in place at different Universities in the UK.

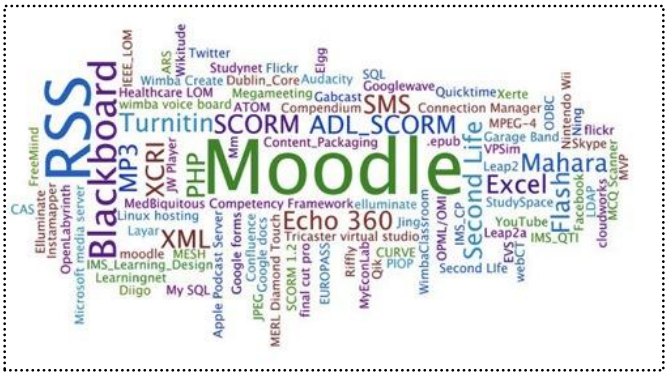

Figure I: Learning Systems used Around UK, Adapted from *http://elearning.ac.uk/features/vlesindelivery.html*

So what has e-learning and e-learning systems enabled us with?

E-learning systems have attempted to fuse diversity and cohesiveness into a dynamic, fluid, stimulating Learning Environment (LE). E-learning has made it possible to remove the barriers of time and space, which enables its users to gather knowledge/information anytime anywhere(Welsh et al.,2003). With the onset of advanced mobile technologies, contemporary e-learning systems has the ability to embed different learning features, giving independence to its users and supporting collaboration between different learners (with different learning needs and styles) via synchronous/asynchronous communications (Alexander,2001).

What concerns are associated with the existing e-learning systems?

Welsh et al.,(2003) mentions the potentials of e-learning systems in the domain of training, teaching and learning. But over time there were a lot of concerns raised around the same systems. Questions were raised on relative advantages of e-learning systems and whether these advantages could be leveraged to re-conceptualize the existing teaching and learning dynamics (Brown,2000).Garrison et al.,(2003) points the inability of the instructional designers/lecturers/tutor to come to grips with the technology backed Learning Environment. The existing Learning Environment has remained unchanged even at the onset of computer based communication, which has transformed the society. Within Universities e-learning systems are simply used to replicate/augment conventional approaches to teaching and learning (Ravenscroft, 2001; Nair,2013 ; Nair et al.,2013). Hence it could be argued that the influence of e-learning in traditional universities has been rather weak, wherein these systems and approaches are used merely as an enhancement to the existing and ongoing practices (Garrison et al.,2003).

Even after decades of research in the field of e-learning systems, they exist today in its basic form and much work needs to be done to explore the covert and/or overt capabilities which can be used to create a technology enabled LE (Garrison et al.,2003). The core value of e-learning would be its capacity to facilitate critical thinking, provision for information, easy communication and in doing so creating an environment for constructing meaning and knowledge. But some literature (Welsh et al.,2003 ; DeRouin et al.,2005 ; Wasson,1996) argues that there is not much of difference in the learning outcomes between traditional and online learning systems. One of the reason for this could be attributed to the use of e-learning systems for merely managing/measuring instruction and training processes, as a result adding less value to the learning process and, more to the content and its delivery (Acampora,2011). This could be considered as one of the reason for the failure of e-learning systems, Gunasekaran et al.,(2002) points out some more factors like

a. Desired outcomes of the system being ambitious, over budget and over time.
b. Designers using IT based on their own likes/dislikes giving less significance to the overall learning design principle.
c. Lack of adaptability of e-learning based on the changing needs of the learners/users.
d. Lack of planning prior to commencement of system development.
e. Failure of preparing students for participation in the learning process for example creating working groups to push students/learners towards collaborative learning.

Table I. Factors leading to failure of e-learning systems

Some concerns regarding the use of e-learning systems has clearly been pointed out above but just like the analogy of two sides of the same coin, these concerns does not prohibit the use of such e-learning systems as tools for creating knowledge, providing content and enhancing the competence among a community of learners and the society at large.

What concerns loom around the 'design' of existing e-learning and e-learning systems?

There are concerns and issues regarding e-learning and e-learning systems, but there are some issues surrounding the underpinning design principles of LE's used within Universities (Garrison et al.,2003). In the happening of technological advancements and the growth of educational sector, there remains a lack of commitment from designers/tutors/lecturers to make use of growing technologies and by not understanding the impact of these technologies can/may have on the learning process and teaching approaches. There are concerns about the lack of understanding of how to blend multimedia based communication systems into the traditional learning setting to create new modes for expressing views, and communicating it to wider audiences (e.g. Chandler, 1995).

From a technological perspective, current e-learning systems are unable to support reflective multimedia interaction, independent of time and place (Garrison et al.,2003). Ideally the value addition for knowledge based LE would be to support/encourage students to go for active/collaborative/shared learning at Universities. But most of the e-learning systems used today are 'digital version' of the content delivered in traditional teacher-student approach in the classroom, wherein the focus is on the content (learning material) than the whole learning process (Ismail,2002; Dehoney et al.,1998). Such e-learning approaches are 'imposed' on the learners without taking into consideration the learners own preferences and competencies. This approach also tends to constrain learners and teachers by making them follow a pre-defined approach to impart knowledge and deliver instruction (Acampora,2011). Though it is going to be a difficult task it would be useful to collaborate with the learners during the design of the courseware to address the cognitive needs of different students rather than looking at the 'one-size-fits all' teacher-centric approach(Wong,2007).

Phases	Dimensions
Analysis • Analyze learners • Analyze the pedagogical approach/ philosophy • Analyze the learning context • Analyze the instructional goal • Analyze the role of the educator	1. Underlying pedagogical philosophy
	2. Instructional design analysis
	3. Content provided
	4. Student Motivation
	5. Unit Information/delivery mode
	6. Lecturer's role/availability
	7. Lecturer's perception of importance
	8. Lecturer's online abilities
	9. Lecturer's online support/training
	10.Lecturer's decision making input
	11.Lecturer's development activities
Strategy • Develop a web based instructional delivery strategy • Develop organizational strategy • Select and develop instructional materials. • Write and produce instruction.	12.Structure and organization
	13. Development of learning strategies
	14. Content guiding learning strategies
	15. Accommodation of learning styles
	16. Study Flexibility - when, where,pace
	17. Web-based design principle
	18. Interaction
	19. Collaborative Learning
	20. Automated online learning activities
	21. Internet based information
	22. Online learning management
Evaluation • Design and conduct formative evaluation. • Revise the instruction.	23.Feedback
	24.Online learning evaluation.

With the growing number of concerns around e-learning, the importance of communication, multimedia based technologies in education has increased over the last few years (Gunasekaran et al.,2002). But in order for these technology based learning systems to make a successful, effective and affective impact on the learners and their learning process, in comparison to traditional learning system , these systems have to be designed and developed using a holistic cum scientific approach backed design techniques(Colette,2001). Siragusa et al.,(2005, 2007) examined some of the factors which can make the adopted instructional design principles and learning strategies effective and impact-full on learners within LEs' blended with technology. Siragusa et al.,(2007,pg 933) pointed out 24 dimensions represented in the table below:-

Table II. 24 Dimensions for Instructional Design.

These 24 dimensions covers different aspects of the learning cycle and could be argued to be looked at the design phase of online learning systems. But these dimensions could still vary depending on the competencies of the students, selecting appropriate ways of teaching, adopted approach to learning context, delivery modes, perceived strategies of instruction, tutor roles and the evaluation methods (Siragusa,2005;Siragusa

et al.,2005;Siragusa et al.,2007). In addition to these dimensions, importance should also be given to adopting different contemporary learning theories to select an appropriate strategy of instruction (Ally,2004). These online learning strategies may enable designers/teachers/tutors to engage with students to facilitate deep learning, thereby providing better support to the learners in the process of learning (Ally,2004, Allen et al.,2004;Hiltz,1990,Davis,2004; Siragusa,2005) .

As pointed out by Jonassesn(1997), many design based literature highlight commonly available suggestions on the use of case-based instruction, non-algorithmic solutions(trial and error) and systematic instructions as part of the whole ID model, to engage/support learning activities but there are seldom any instructional design model prescribed onto how to develop different components which constitutes the existing online instruction. Pragmatically, these components are developed based on the personal experience/competencies of the instructional designers. Many online LEs are developed without considering design principles, such systems uses web only as a medium of delivery of course contents created in most cases for traditional classroom based approach with a different framework (Carr-Chellman et al.,2000 ;Nair,2013; Nair et al.,2013).

Systemic evaluation of contemporary e-learning systems

Apart from design-based concerns, e-learning systems face issues related to efficiency, effectiveness, attrition (dropout levels) and appeal. Welsh et al.,(2003), shows e-learning systems has been received positively by the users in the classroom , but such findings could be situational , based on different context based variables. While some criticize it to be having an impact on learners, some argue that there is no significant difference in the learning outcomes between online and face-to-face learners (DeRouin et al., 2005). But some findings (Allen et al., (2004), Welsh et al.,(2003),Wasson (1996)) cite students in e-learning courses to have achieved higher grades in comparison to the control group of students from traditional classrooms. It cannot be asserted that e-learning systems are better than traditional classroom settings, but it could be argued that e-learning has the potential to enhance the learning output of its users on a long term basis.

It could be argued that e-learning has the potential to make an impact, but contemporary e-learning systems used in Universities rely on third party commercial courseware's like Moodle, BlackBoard, WebCT etc, than developing it in house, based on expertise of its users, expected learner's learning outcomes, modes of assessment etc. These third party Learning Management Systems (LMS) tends to act like launch pads for the contents derived from the traditional classroom materials. And as mentioned earlier these University based e-learning systems are used as content database by the content developers/users (Acampora,2011).

The development cycle of e-learning systems used in Universities constitutes evaluation-feedback process for tutors and instructions designers at large, to maintain the effectiveness of these systems but at the core of the whole process there should be an evaluation including the learners (Siragusa et al.,2007) and effectiveness of these systems should be judged on the learning outcomes of these students(Davis,2004). The information gathered through formative evaluation can be used to re-visit the same LE, for it to be revised for improving the efficiency and effectiveness of the system (Dick et al., 2005).

In a traditional classroom, evaluation of a student can be carried out verbally (class tests, viva, presentations etc) and non-verbally(facial expression, body language). But when it comes to online classroom these evaluations would be difficult and non-accessible especially the non-verbal part. In such cases, varieties of methods have to be deployed in order to conduct evaluations. In an online setting, evaluations could be done by assessing the work done through weekly assignments, online discussion contributions, text, audio or video based postings in online discussions/forums, presentations in the form of webinar or podcasts etc (Vrasidas,2000; Hiltz,1990).

Hence it could be argued that the techniques used in a traditional classroom setting would be almost different from online classrooms based and in such circumstances the critical success factors (CSF) for an e-Learning Environment pointed out by O'Neil et al.,(2004) are:-

a. Students must have prior Experience of using ICT
b. The architecture of the learning systems should be effective, efficient, affective and must make an impact on the learning outcomes.
c. Lecturers/Teachers should assume the role of facilitator in a learner centered teaching approach.

Table III. CSF of online learning classrooms

Summing up the arguments so far, it could be reiterated that the research in the field of e-learning, design and development of, evaluation of and implementation of e-learning systems at the Universities has been done for over decades, yet educational institutions have not been able to completely capitalize the potential of learning systems and has failed to penetrate the established traditional teaching practices at Universities and to bring about innovation in the delivery of instructions.

One such innovative way for the delivery of instructions at Universities could be enabled with a PLE.

Personalized Learning Environment (PLE)

Technologies including contemporary e-learning systems, (like a new toy) may be attractive to work with in the first instant but over time the interest level with that particular technology takes a bell curve. With e-learning systems one of the possible reason for this could be attributed to the lack of guidance to using e-learning systems which are completely different than the ones used in a traditional everyday classroom life, the learning taking place in a non-traditional way, may be lost due to lack of guidance from teachers and, students themselves being not psychologically prepared to embark upon a learning process in a non-traditional self-paced way, by making use of the Virtual Learning Environment (VLE) at the Universities.

Why is the psychology of learner important one might ask? E-learning came into existence by blending technology into the traditional classroom set-up for learners to make the most of the learning process, developing competencies to deal with technology for learning. Competencies are important not for just learning online but also to deal with frustrations arising in an online learning setting. This frustration could root in the 'isolation' one might experience when working/studying/learning in a digital environment, this issue of isolation is considered by many as the barrier for novice learners (Wong,2007).

E-Learning systems has the advantage of giving its learners freedom to learn, to engage with the system as a part of the learning process but in order for the learners to make the most out of it, learners need to have self-discipline, motivation, integrity and self-direction (Kearsley, 2000) not having it leads to high drop out rates among contemporary e-learning system users and cause the existing high end e-learning systems as mere digital version of the classroom content-delivery (Schott et al.,2003;Rivera et al.,2002;Wong,2007;Carr,2012). In order to reduce the attrition ratio, it is important for not only lecturers/tutor but also for designers to provide additional support and encouragement to compensate for the isolation faced by the learners. One of the solutions to pump up the motivation of learners is to develop learning systems using some attractive, user-friendly, readily available, day-to-day kind of technologies to create a PLE.

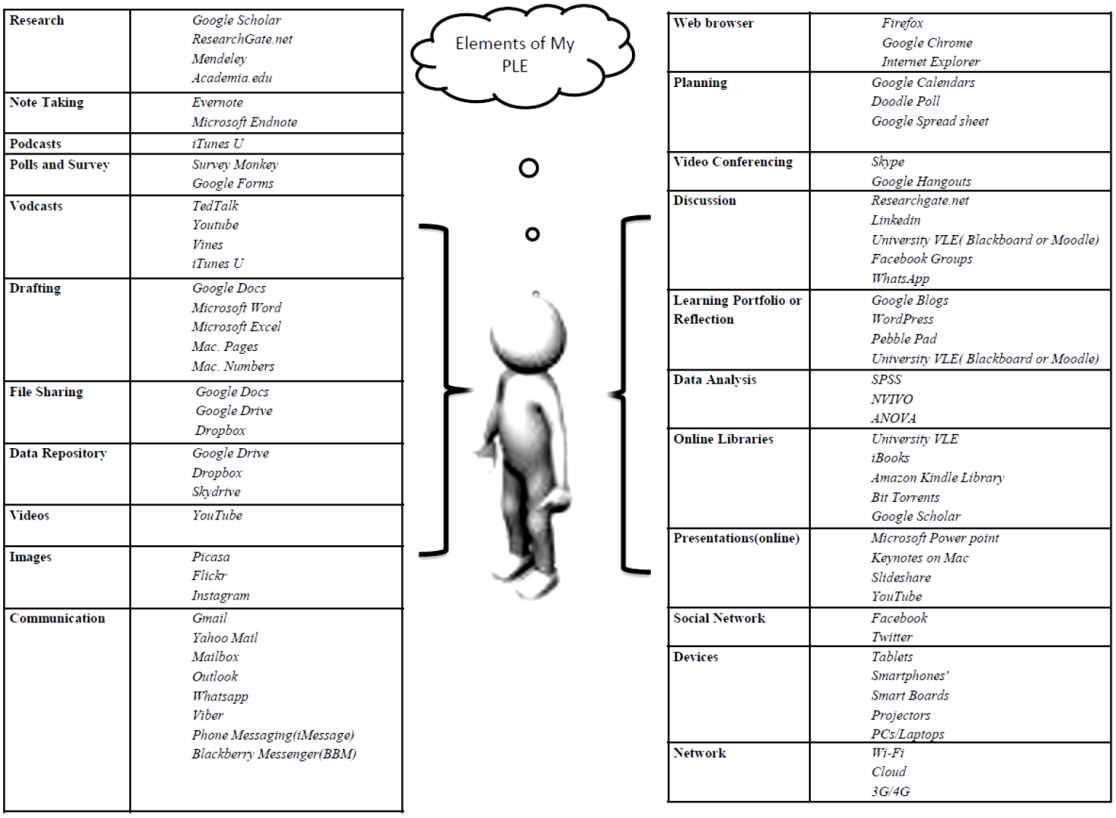

Figure II. An Example of PLE , adapted from Nair(2015)

PLE could very largely be described as a collection of (ubiquitous technologies) tools (including devices/applications), social communities, online resources and services all of which constitute an individual's educational platform (as shown in the fig.II above), which the learner (for fig.II the author looks at himself as a learner) could use to direct their own learning, develop their own competencies, together with extending their educational goals (Fiedler et al.,2010; Lombardi,2007). A PLE could be perceived as a single user's e-learning system (Harmelen, 2006), which tends to adopt a learner-centric approach in contrast with the teacher-centric LMS put in place at Universities.

PLE's could offer learners autonomy and freedom over their own learning process. Learners would have a self-paced approach towards their engagement with the learning materials and their choice over the sequence of instructional delivery online enabled by ubiquitous technologies (DeRouin et al.,2005;Attwell,2007;Fiedler et al.,2010;Harmelen,2006).

The figure above gives snapshot of the scale of different technologies which are present out in the open, and could be personalized to engage the students and to give them freedom to learn from learning materials by creating, sharing and collaborating at a wider scale with people within the network of such technologies.

Lack of active engagement between tutors and tutee's could attribute to the high level of drop outs in e-learning courses(Carr,2012). In order to prevent this, Universities should be looking out for different ways and means to engage students with e-learning through personalization of learning experiences enabled by the use of stories/simulations/games/virtual reality/special effects to present learning contents to the student audience (DeRouin et al.,2005). It could be pointed out "students (born in the digital age) today are looking to gather more flexibility in the course delivery at Universities"(Ryan et al., 2000, p. 12). Hence the design of online LE should facilitate these new age students/learners with features that will allow them to learn anywhere, anytime, any-sequence and any-pace they choose individually at a personal level (Siragusa, 2007). In doing so LE's could support each students learning and cognitive styles (Ally, 2004).

Though such systems provide students the anytime anywhere feature to learn, such systems must be designed to promote learning, under control and with the right feedback loop (Ally, 2004). When using PLE's one of the learning theory which act dominant is 'social constructivism' (Siragusa et al.,2007). For example, a student listening and talking to lecturers/tutors, working with the learning materials, engaging with the peers during class activity will help in building his/her own understanding of the set learning outcomes. Apart from adopting a constructivist approach ,PLE make room to support students learning with double loop feedback (behaviorist) and the right amount of conditions for the learner to process information(cognitivist)(Siragusa et al.,2005 & 2007).

Instructional designers of PLE's must select learning strategies that would motivate learners, facilitate deep-learning, develop individual competencies, collaborative learning, make provision for feedback/monitoring in the learning process (Ally,2004). Even though designers create an immersive and engaging LE(well designed) to enable students to exhibit cognitive realism the fact remains that students should have the discipline to commit within such environments and work within set parameters to achieve the desired learning outcome(Herrington,2007).

One of the assumptions of instructional design is that different learning outcomes demands different learning conditions (Jonassen,1997) and the learning process would be optimum when it is personalized and assisted. Computers with the internet has the potential to be designed according to each students knowledge and learning needs with effective monitoring system to derive the right learning outcomes (Alonso et al., 2005). An example of a PLE,

"Consider the student as gamer. She is motivated to play because she gets feedback every few seconds. That feedback entices and enables her to "stay in the game," provided she has learned from prior experiences, monitors the current situation, pays attention to the constant feedback, and reacts quickly enough. "Failure" simply provides her a quick break before she gets back into the game—with renewed effort, new data, and new resolve to achieve new plateaus" (Apple,2008, pg.24)

Conclusion:

E-learning, an instructional strategy for imparting needed knowledge, skills, and attitudes in organizations, is here to stay if it could be pushed beyond the boundaries of being a mere data repository (Nair,2013; Nair et al., 2013;Nair, 2015). Its viability, effectiveness, and potential to return tangible benefits to organizations depend largely on how it is designed, delivered, and evaluated. The arguments highlighted in the preceding sections do suggests some progress has been made in understanding the benefits of e- learning, much remains to be done. And much remains to be learned about how to best design the e-learning environment, how to optimize its delivery, and what works when and why.

The whole concept of personalized learning environment goes beyond the boundaries of existing technological infrastructure in place at the University, it has the potential to reach every learner on the screen of any ubiquitous technology they use on a day to day basis. As new technologies evolve and more pervasive forms of technology emerge, learning through them become 'a natural' phenomenon and will be embedded in all aspects of our life.

Many technologies have become integrated into our lives over the years, for example: the telephone; television; PCs; the Internet and mobile phones. These innovations may have appeared strange and futuristic at first but, over time they blended into our everyday lives. In this age of progress and great change, we tend to easily adapt to the technologies and the associated pedagogies that emerge, just like the evolution of e-learning from corporate and in house education in the 70's to personal education powered by micro world environment in the 80's to web based learning in the 90's and through this article it is argued that personalized learning environment would become the new paradigm coming out of the 21st century as the new hope for the future of education and online learning.

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