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Is Social Network an Effective E-learning Tool: A Survey

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Abstract: The information and communication technologies showed great potential for enhancing and merging social networks with e-learning system. These e-learning systems have been able to provide interactive education delivered electronically through web over the internet in synchronous and asynchronous modes. The many organizations are using e-learning in their training courses and enhance the learners abilities. These e-learning systems in organization change the organization layout through social networks as e-learning tool. The paper begins with e-learning systems and its key concepts and then discusses social networks and its usage in e-learning systems. The aim of this paper is to examine the role of social networks in e-learning systems and focuses on analyzing the challenges, advantages and disadvantages of e-learning and social networks and their effects on the students learning.

Key words: E-learning · Social networks · Organization · Models

INTRODUCTION

New technologies have a strong influence in all aspects of our society from commerce to business and health to transportation and entertainment as well [1-3]. The e-learning derived from the use of information and communication technology (ICT) to convert into traditional learning models. The evolution of e-learning has greatly impacted on the global socio-culture development. Technologies have played an important role in education sector by introducing e-learning. Electronic learning has various benefits such as private learning facility, convenience of use, provision of virtual environment and cost effectiveness. It provides the ability to collect sensible information material for users. It is a new environment for students to acquiring knowledge from electronic media such as information and communication technologies (ITC) in education sector [4]. The e-learning is inclusive of computer based training (CBT), Web based training (WBT), online education, Virtual learning environment (VLE), mobile learning and digital educational collaboration [5]. These different names emphasize a particular aspect, component and delivery method. E-learning comprise with various types of media such as audio, text, video, technologies and processes. One of the common example is web based learning [6]. The e-learning system means delivering large amount of knowledge to increase performance of distance learning. In other words the e-learning is internet enabled learning and mostly use for delivering the education. The traditional classrooms need to be substituted with lecture halls that can support electronic lectures [7]. There is a need to improve the e-learning through different methods such as data mining, statistics, machine learning and many more. There are many benefits of e-learning like convenience of self -service, on demand, anytime and anywhere, self-paced, cost effective, virtual environment [8].

The e-learning process need the availability of motivational factors and involves with technologies and algorithms from HCL approaches and techniques for their adoption. With more advance enhancement, the e-learning facilitate and attract the end users for educational purposes. It has beneficial features for distributing education and information via e-learning.

The E-learning Evolution: In past years, several virtual universities created like Global Network Academy in Denmark, British Open University, and University of Texas etc. Some other institutions have joined these universities and make alliances with them for distance learning programs such as Yale and Oxford etc. Nowadays

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more than 700 universities offers distance learning programs and more than 2000 cooperative universities taking benefits from e-learning systems. Technologies have been widespread and provide permanent education demands. Many well established companies offer technical courses through distance learning such as CISCO, Motorola, Microsoft etc. Besides institutions have been providing certified courses in the form of certifications and diploma. The expansion of open universities has already begun to transform the traditional universities, while at the same time increasing the diversification and development of higher education models. The development of information technology industry in multimedia instructional sector has been very intense in the last few years.

In Europe, the use of e-learning for enhancing quality and improving to education and training is generally seen as one of the keystones for building the European knowledge society. Some other countries have their own policy about ITC usage in education. The Europe has different path compared to USA, they focus on creative and immersive approaches for learning. The reuse of e-learning material through different approaches is another significant side for researchers. Taking into account that e-learning is an extension or form of distance learning, its roots in various locations can be traced to the early years of the nineteenth century, when courses were submitted by correspondence [9].

The most recent e-learning generations have intrinsic ICT features. This has been accompanied, in recent years, by an increase in the users and an increase in the learners control over their learning and their opportunities for dialogue and the promotion of thinking skills. The evolution of e-learning offers a step by step analysis from distance learning in the nineteen fifties, using radio, then correspondence, then audio and video recordings, through the establishment of the open universities, to the nineteen eighties, (computer- based-learning) where these methods became complementary to traditional education [10].

Recent events suggest that to complete the picture, another step could be added, from the beginning of the twenty-first century, when the design of Websites became more advanced.

This enabled users to design, control, implement, manage and evaluate the processes of learning and teaching, via high-speed bandwidth (DSL). To facilitate these developments investments have been made within the education system. In response to learners interests additional social networks are also used (Face book, blogs, You Tube, My Space, Second Life and Wikis).

Examples of the latest technological devices are e-books, e-paper, iPods, iPads, voice recognition, Wikis, multi-touch interfaces, Pod casts, and others. All these developments have led to a change of the concept of e-learning, both in its presentation and in the levels of interaction and in the multiplicity of its interactive aspects. The third generation was distance learning which concentrated more on electronic interaction and the communication between the student and his tutor. Finally, he posited the fourth generation, the present time, with the web and its developments. This identification of the available technology with the pedagogy it is capable of supporting represents a clear view.

To summarize, the controversial histories of the beginnings of e-learning trace its roots either to a hundred years ago or to the end of the nineteen fifties, or to the emergence of programmed learning in the nineteen sixties, or to the eighties when computer-based- learning emerged. Within this study, the beginning of nineteen nineties is considered the actual start of e-learning s history with the widespread use of internet in education and its capacity to provide interactivity [11].

E-learning Challenges: The information and communication technology in education sector has been worldwide recognized and play a significant role in development and to attain universal scope in knowledge. In e-learning, the instructors or teachers play a new role of designers of courses and contents for learning activities. Instruction design is critically important for system and in classrooms; it is depend on teacher and instructor experience and wisdom. Therefore, the teaching methodology in e-learning in the shape of creative and psychological sensitivity become essential skills to

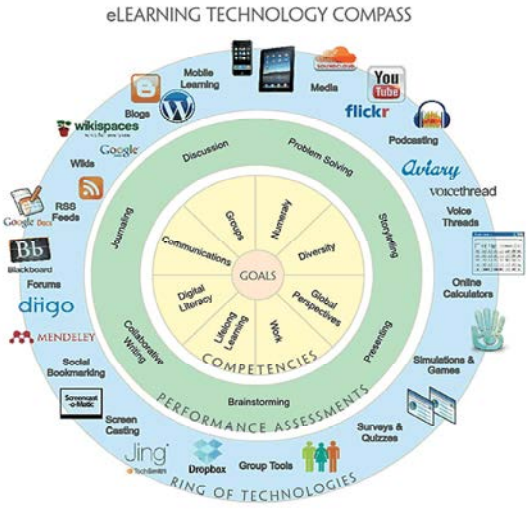

Fig 1: The e-learning system

design e-course. The traditional classrooms teachers depend on a number of visual and unobtrusive cues from their students. Teachers observe the class, who is confused and boring, who taking notes. The attentive teacher tries to engage the class with some tricks and divert from contents. However, in distance learning teacher has no visual cues and difficult to carry on a teacher class discussion effectively.

Therefore, most advance multimedia technology is not the one that artificially replaces reality or intelligence. This is one of the main challenge in e-learning systems. The graphic interface is very important for any application, in which the many operations important to interact with it by pressing buttons, selecting items from menus, manipulating icons, etc. This is the result of a continuing process starting with the birth of computer science and destined to lead human computer interaction. The term visual e-learning is generally used to indicate the system in which two or three dimensional visual potentials in some way. The visual learning has many applications such as Web broadcasts and self-paced computer based trainings. The most attractive visual trainings have video, rich visualization, and attractive layout for users. Some theories identify different key aspects, in Howard Gardner, in his book "Frames of Minds" [12], elaborated seven intelligences for influence different learning styles: logical, linguistic, spatial, bodily-kinesthetic, mathematical, interpersonal, and musical.

Another challenge is usability in e-learning systems and learning tools strongly depends on learning systems. Therefore, an e-learning system platform sets the target of successful usability issues. Most of the people who will interact with e-learning systems in near future, outside the academic circle have little knowledge about e-learning. Therefore, it is important that user interaction with machine be as unromantic as possible.

Approaches: In the field of graphical user interface and design, users customization and facilitation requirements takes a blend of human computer interaction, data mining and intelligent agents techniques. These all methods use for create a better designing and effective interface for successful e-learning sessions. The user attitude and motivation to adopt technologies for knowledge seeking in the form of e-learning is getting admired now days. Below section illustrates the techniques used for e-learning purposes and chalks a survey of features for these techniques.

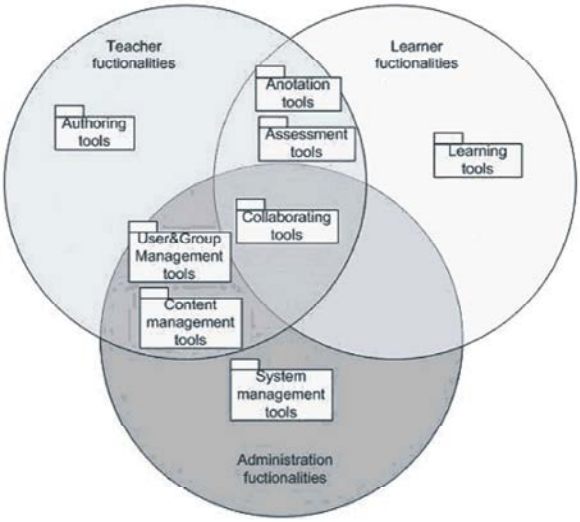

Fig 2: Basic tools in e-learning systems

E-learning Tools: The tools have a significant role when designing e-learning systems and fulfill the system objectives. The e-learning system normally divided into three groups such as adaptive, intelligent tutoring and non-adaptive systems. These groups are mostly used on the Web, the hypermedia belongs to adaptive systems and Intelligent tutoring systems belongs to intelligent systems. The Learning Management System (LMS) related with non-adaptive systems. There are many e-learning tools present in e-learning system but mainly they categorized into three main groups by functionality: teacher tools, learner tools and administration tools shows in Figure 2.

The most of tools are shared between these actors, and collaborating tool like news, email, discussion groups are shared by all actors. These tools give the main functionalities in the system and implemented in different ways. The adaptive systems are emphasized on adaptable structure of the educational materials [13]. These tools provide diverse editions approaches: stretch text, fragments, and frames linked to the concepts such as ISIS-tutor [14] etc. The intelligent tutoring systems arebelongs to e-learning process like user modeling, pedagogy and user evaluation. These system focused problem based learning (PBL) and are more accurate and precise in defining student profile. The ITS architecture contains five main modules, domain knowledge, pedagogical, expert and communication model. The third type non-adaptive systems are more successful in Web based education because of efficient administrative features compare to adaptive systems.

E-learning in Organizations: The e-learning play a potential role in small and medium sized organizations (SMEs). The information and communication technology could create new forms of learning in organizations. The success of e-learning is depending on organization people and culture. The e-learning is an appealing in terms of time, financial resources, facilities and expertise and present growth in e-learning makes new types of learning. The one of the main advantage of e-learning in organization is reduction the cost in trainings and make knowledge easier and integrates workers into the company [15]. The e-learning is a new way of providing a platform that holds great potential and enhancement in old traditional education systems. The large organizations develop a human resource development infrastructure to provide efficient trainings to their employees.

E-learning Models: There are three main forms of e-learning: Academia, Business and Government for the sack of simplicity and design models. Some examples of academia are special education, higher education, universities and accreditation, where e-learning exploiting and saturating with online learning. The academia is very popular with e-learning where individualized curriculum models available for students. The special education in academia is one of beneficial example of e-learning, where students with disabilities gain virtual reality education for assisted learning system. The universities also have some form of e-learning programs such as new consortia especially for MBA degrees (Pensare, FT knowledge, Quisic). Many universities have e-learning curriculum like Harvard, Yale, Kent and Princeton etc. The accreditation is the number one verification of the quality of higher education distance education provider. The some agencies are U.S.Department of Education and Distance learning Training Council updates guidelines for evaluating distance education and Web based trainings. The business models are belongs to organizations development, training and solutions. Through e-learning these organizations have been provided efficient, cost effective, attracting and retaining skills to develop and enhance employee attitude, culture and work force performance such as Cisco, IMB, Microsoft etc. The e-earning in government sector for help employees and constitutions with fast strategically and for economy such as learning circuits for collaboration and develop economy [16].

A model of e-learning need to improved access of training, flexibility for employees and should be cost effective with quality control and high productivity. The e-learning model for organizations have clear vision and goals. E-learning strategies have to address pedagogical, economical and technologies goals. For technology and pedagogical quality, different models and theories for e-learning already exist such as Essen Learning Model (ELM). But still various theories neglect the economical quality in terms of sustainable and marketable products. The e-learning system is a combination of information and communication technology and with learning process.The one of the main component is technical system for e-learning system.

Advantages and Disadvantages of E-learning: The e-learning system has many advantages and one of the main strength is access anywhere anytime for students. The students have access the education material freely all around the world.E-learning is use for sharing resources and ideas between students and instructor and providesdynamic interaction with high quality and asynchronous discussion structures. Online learning is based on technology and technology plays an enormouspart in the western countries and therefore online learning can be easily adapted in society.The most promising advantage of e-learning is the possibility to make the student part of the study material, not just a plain viewer of it (both in terms of participation, knowledge and progress evaluation, and even as a creator). Computer can act both as a provider of study material and as a tool to monitor the student and his progress. Even basic e-learning tools offer different means of interactivity allowing students to choose at least their own study pace and focus. More advanced techniques involve testing and on-line monitoring of student's progress and course adaptation. Another key feature of e-learning is the fact that it is often not bound to a specific time or place and can be served to the student depending on his need and schedule. When e-learning is used as a distribution channel for study materials, it can easily overcome distance and time barrier (including discrepancies between schedules of students and teachers).

The e-learning applications can make a use of the large amount of accessibility improvement tools already available for computers. A typical example is text narration or magnification. While none of these is new, their integration with e-learning materials is often considerably easier than with other media, for example, article reading. Computers today already provide rather good possibilities of text narration for people with impaired eye sight, so the text author only needs to a provide textual version of the

article in a common format and the reader can easily use third party aids to perceive it. On the other hand, the effort needed to create even basic study materials is large. E-Learning applications are even more demanding to create. On the other hand, if proper standards are followed, the results can be easily reused and adjusted for other students or purposes. Additionally once created, e-learning materials can in the most cases reused by arbitrary number of students without notable additional effort. Properties mentioned above can result in a decrease of cost for creation and maintenance. This might not be as important from the academic point of view; but it can be the key driver of the interest in the business sector.Current computers are usually already well equipped for multimedia content presentation. It can be very useful in distance learning since the specialized equipment for presentation of specific content (movie tapes, animation boards) might not be accessible in a student's home, and therefore the previous distance learning was often reduced to following a book. Knowledge absorption during activities which involve only simple reading is relatively low, so the improvement by active involvement of more senses is beneficial.

We discussed many advantages of e-learning and now we discuss some main disadvantages as well. One disadvantage of e-learning is that learners need to have access to a computer as well as the Internet. They also need to have computer skills with programs such as word processing, Internet browsers, and e-mail etc. Without these skills and software it is not possible for the student to succeed in e-learning. E-learners need to be very comfortable using a computer. Slow internet connections or older computers have problem to access courses and materials. This may cause the learners to get frustrated and give up. Another disadvantage of e-learning is managing computer files and online learning software. The usage of e-learning is quite complex for learners with beginner-level computer skills. Some of the students also may have trouble installing software that is required for the class.

E-learning also requires just as much time for attending class and completing assignments as any traditional classroom course. This means that students have to be highly motivated and responsible because all the work they do is on their own. Learners with low motivation or bad study habits may fall behind. Another disadvantage of e-learning is that without the routine structures of a traditional class, students may get lost or confused about course activities and deadlines causing the student to fail or do poorly. Another disadvantage of e-learning is that students may feel isolated from the instructor. Instructions are not always available to help the learner so learners need to have discipline to work independently without the instructor's assistance. E-learners also need to have good writing and communication skills. When instructors and other learners aren't meeting face-to-face it is possible to misinterpret what was meant. However, new learning techniques device strategies that motivate the learners and lessens the obstacles that e-learning may face, making it a popular and more preferable method of learning. Some other advantages and disadvantages are shows in below Table 2.

Table 1:Social Network Applications with their functions in e-learning

Function	Research Gate	Student Circle Network	Edmodo
The source of course material	User generated contents	Open Course Ware	User generated contents
Course material type	Dialogue with expert	Multimedia file	Multimedia file, exercise and quiz
Record of teaching learning result	None	None	Exist
Moderator of teaching learning process	Other user expert	None	Teacher

Table 2: Advantages and Disadvantages

	Advantages	Disadvantages
Health and safety issues	Security and safety of staying at home, work or other secure place	Time consuming and cause of obesity, eye sight and other health related issues
Human Interaction and Socialization	The shy students are more active in chat room	Lack of important human interaction
Ability	Computer experts are enjoy	Without computer awareness the system is complex
Satisfaction	The limited resources students take degree or certificates	Above average dropout rates among a diverse population. Reasons given range from lack of time to computer illiteracy issues

Social Networks: The social networks play a significant role in different fields and received attention from researchers for instant in psychology, education, philosophy and lately in computer field. The social network defines as a social structure of nodes that represent individuals and the relationship between them within a certain domain. The strength of relationship and trust are main factors to build a social network [17]. The social networks increased collaboration and sharing between users through different applications like blogs, wikis and podcasts, RSS etc. Some social cites have become popular like MySpace.com, Friendster and most recently Facebook especially in youth [18]. There are other various types of social collaboration exists and one of the main type is teams where users deliver a specific task such as in computer science field the software engineering projects groups. Other types of groups are communities and networks and belongs to informal groups. Communities develop for sharing the activities together and formed to deal with a precise topic [19]. The communities are categorized in different aspects like boundary of membership, purpose of community, formalization of set-up size, composition, type of interaction and co-ordination of members. The international networks or "Networks of (NoPs) and a collection of collaborators for a precise task.

The Social Learning: The social dimension of learning has been gain great importance for learners and teachers. Different authors and researchers explained this phenomenon like one author argue learning is a function of activity context and culture which it occurs, where social interaction is critical [20]. Another author presented learning as a process, where learners involved in community with certain believes and behaviors.

Social Networks in Education: Usually the different institutions use many approaches in classrooms like lab, lectures and tutorials. The activities are in the face to face, peer assessment, discussions and combine work. The academic course designers have been changed these activities in the shape of chat rooms, blogs, and collaborative work support tools. These techniques are more efficient and effective in debates, analysis and subject evaluation [21]. The basic concept of social networks in education is group of learners share their ideas or find a solution in subjects. The application of social networking incorporate with web technologies available for classrooms. Social networks tools with many students might present problems. The new semantic modeling has been facilitates the dynamic and automatic creation of student networks within online communities [22].

Social Network Applications in E-learning: The e-learning covers an extensive set of processes and applications like computer-based learning, Web-based learning, digital collaboration and virtual classrooms. The social network is combination of socialization and personalization [23]. Another dominant feature of social network is transparency [24]. The application of social network for e-learning platform has features of social network and also able to fulfill its functions. There are many applications have been developed for e-learning but they have limited in functions of e-learning and social networks. The three available platforms are: Research Gate, Student Circle Network and Edmodo [25]. In these applications only Edmodo has function of an e-learning system and other are social network applications.

Trend of Using Social Network as E-learning Tool: There are many references and sources in which researchers predict the trend of social networks in e-learning. The social web aim to enhance collaboration and communication among learners via Web and social networks for educational and training purposes. The social networks have been provides an attractive platform and implement as a active player. The new media applications and collaboration and social interaction are the driving forces in new e-learning environments such as blogs, wikis, presentations, photos, videos, etc. The learner is the centre of the educational and learning process and require access personalized services, communicate, and collaboration. In 2005 HR forecasted the significant of social web via collaborative tools for communication among students. This report also highlighted the importance of social networking in education. The below chart shows the social web technologies and its impact on e-learning according to Horizon Reports from 2004 to 2010 [26].

DISCUSSION

We observed about social network and their usage in e-learning systems to facilitate the students in their educational journey. The computer supported learning systems interacting with course materials and provides a strong platform for substituting the social part of learning has become decisive. Various efforts have

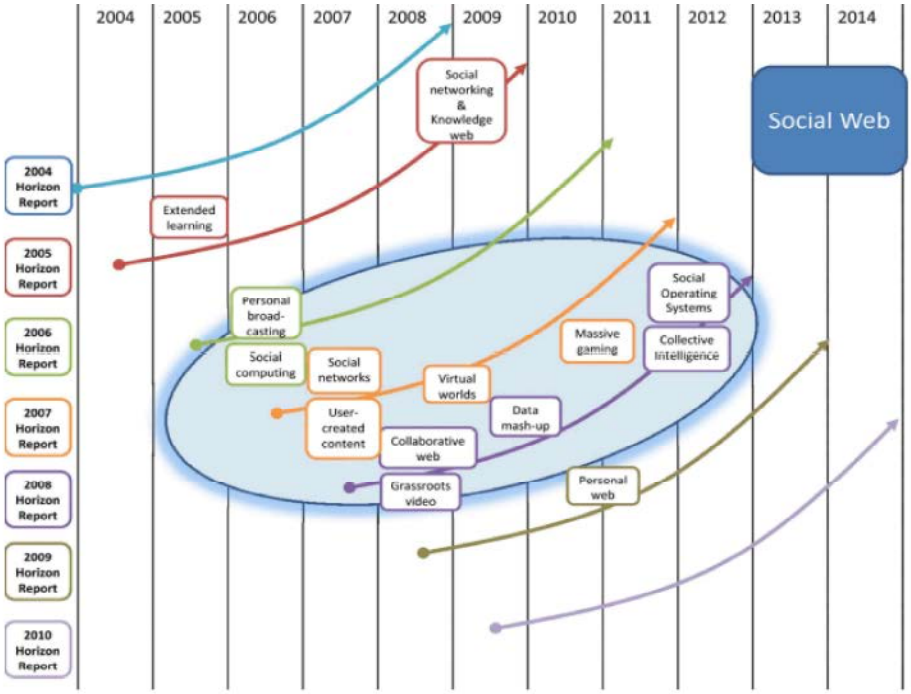

Fig 3: Social web technologies in education

attempted to establish and maintain the students attractions with online systems via social networks. The one prominent example is NJIT's virtual classrooms as an efficient social and computer network [27]. In this system the students pursued their education with their full time job anywhere and anytime. Recently the Web 2.0 quickly gained popularity and attention worldwide for creating content, sharing videos, tagging photos and blogging. These enhancements have placed a new challenge for universities within their economical limits adopt and apply these social softwares within education. The social software has provided various features, which can serve the learning field. The Multimedia or any content on web can be highly efficient in tagging learning materials. Tagging provides the simple and easy way to gain experience from trusted members in social networks. Recommender systems are another area for recommendation of learning sources and material information. These systems are based on similarities between users, if students are from same network than apply algorithm for networks and avoid individuals. In virtual universities tagging, sharing and recommendation can be highly efficient. The internet applications are another effort in this context such as Microsoft Windows Live, Office live and other tools and development techniques like java script and XML.

However, from our survey, we also perceive that existing software ignore trust, privacy. Within education trust and authenticity must be facilitated to enable personal security and trust.

CONCLUSION

The survey demonstrated the e-learning systems with social networks and how they impact on virtual learning. Further the presence of social networks in e-learning systems and effects are discussed with advantages and disadvantages. The main contribution of this survey is analyzing present learning systems and find the connection of social networks in education. We also discussed the applications of social networks, models etc. The usage of social networks in e-learning model as a toll is effective to provide interactive and better platform for learning process especially in small and large organizations. But still more research needs to be conducted in the area of social networks with e-learning systems. The implications of this survey extend into practice and research. The future work in this research will investigate the impact of social networks on student learning experience and proposed a new method that help the training organization using social media as e-learning tool, through efficient transformation process.

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