Challenges in Development of eLearning Systems in Higher Education of the Developing Countries

Ghulam Muhammad, Dr. Fahd Mohammad Albejaidi, Mrs. Robina Akhtar

ABSTRACT

Background and Objectives: eLearning systems are used by other than IT professionals and their perception determines the development and use processes (success/failure), this relationship is mediated by the issues of digital literacy, mindset or beliefs.

Methods and Tools for Analysis: This paper develops a theoretical model for eLearning development and use in higher education in developing states. Literature survey was done. A computer based software ATLAS.ti was used for qualitative analyses. Variables and sentences were fed into ATLAS.ti, coding, extraction of quotes and memos were created. The study used examining, categorizing, tabulating and recombining for data analyses, through hermeneutics, discourse and heuristic analyses.

Keywords: ICTs, HEIs, eTeaching, eLearning, eAdministration, eMaturity, approaches, socio-technical infrastructure, digital-literacy.

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Challenges in Development of eLearning Systems in Higher Education of the Developing Countries

Dr. Fahd Mohammad Albeijaidi, Dr. Ghulam Muhammad Kundi & Mrs. Robina Akhtar

I. ABSTRACT

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Findings: The context of an institution where new eLearning systems are introduced includes many things but most critical are the users. Their mindset and digital literacy is reported over and over as the critical success and failure factors for eLearning development and use practices. It is now becoming increasing possible for the developing countries to arrange for the infrastructure and other eLearning technologies. Similarly, they can have one or another approach to their project. These are comparatively controllable variables but developers and users are not easy to make available in the required form. Their behavior depends on their perceptions of technology, meaning that if they consider eLearning technologies positively, they will become a support to the development process but if otherwise, they pose serious threats to the eLearning projects in higher education. The perceptions depend on knowledge about ITCs thus; users’ digital literacy can either make or break the destiny of eProjects for eLearning.

Application/Improvements: Most of the HEIs are adopting latest gadgets which results into more problems than services, as leading-edge technologies turn into bleeding-edge technologies. The institutions in developing states borrows models from the advanced countries, which is a well reported critical failure factor, so researchers should focus on the contextual-compatibility for successful eProjects.

Keywords: ICTs, HEIs, eTeaching, eLearning, eAdministration, eMaturity, Approaches, Socio-Technical Infrastructure, Digital-Literacy.

Author α: Assistant Professor, Department of Health Administration College of Public Health and Health Informatics Qassim University, Kingdom of Saudi Arabia.

σ: Professor, Department of Public Administration Gomal University, DIKhan, Pakistan.

ρ: Director Physical Education Elementary & Secondary Education Government of Khyber Pakhtunkhwa, Pakistan.

II. INTRODUCTION

E-Learning is an unprecedented opportunity for higher education to achieve their old and emerging objectives more powerfully but problems occur when systems are not designed and developed without considering the user characteristics relating to their nationality,
The effective integration of ICTs into higher education is a complex and multifaceted process that involves, not just technology but also pedagogy, curriculum, institutional eReadiness, teachers’ digital literacy and consistent financing (Kundi et al., 2014; Kundi & Nawaz, 2013). The growth of innovative practices in eLearning has developed new skills and novel ways of using them within project teams for eLearning projects (Zubair et al., 2013). ICTs can facilitate all these activities to successfully integrate pedagogy and learning models within the context of a particular application (Nyvang, 2006; Nawaz & Kundi, 2010a, 2010b).

The research reveals that those institutions which have developed and using successful eLearning systems, strongly believed that development and use of eTeaching, eLearning and eAdministration is driven by pedagogy, not the technology (Kundi & Nawaz, 2012a). Furthermore, experiences with eLearning in developed and developing countries inform that it is not technology (Jewels & Ford, 2006) rather human and cultural issues which can either work as success factors or turn into failure variables. For example, culture is a highly influential factor in the pedagogical models of every institute (Kundi & Nawaz, 2012b). Practically, however, research tells that current eLearning practices have been centered more on technological aspects than the applications of pedagogy (Phillips et al., 2008; Qureshi et al., 2009).

ICTs have affected our life overwhelmingly, for example, one can work, do shopping and keep in touch with relatives with a personal computer and internet account (Nawaz & Siddique, 2012; Sirkemaa, 2001). However, the introduction of eLearning in educational settings all over the world suggests that the achievement of potential educational benefits is not automatic (Nawaz & Zubair, 2012b). Several problems are reported in eProjects for eLearning in both developed and developing states, for instance, ICTs can become an end in themselves instead of being a means to enhance education (Nawaz, & Zubair, 2012c; Sahay, 2004). In the background of globalization, instant communication via Internet and mobile technologies; the universities, are struggling with several internal and external problems (Nawaz, 2012b; Loing, 2005). Their ability to successfully using new gadgets hinges on the institutional “eMaturity” of the universities to adopt educational technologies (ETs) (Nawaz, 2012c; Moolman & Blignaut, 2008).

The emergence of computers in education has prompted the researchers to explore the affective and social aspects of these technologies (Kundi & Nawaz, 2011). Because there is no denial in the fact that ICTs have opened up new opportunities for teachers and students but they have also created novel threats (Abbas & Nawaz, 2014). For example, teachers apprehend that eLearning is a threat to formal education (Zubair et al., 2013). In the developing countries many eProjects fail (Kundi et al., 2014; Wells, 2007) due to similar problems such as, inappropriate technology, poor project- implementation, and inadequate use of equipment, improper follow-up, weak user-training and incompatibility of the project with the constantly changing social and political context. These problems can lead an eProject to a failure in achieving the objectives of eLearning (Qureshi et al., 2009; Nawaz & Kundi, 2010b).

III. E-LEARNING IN HIGHER EDUCATION

For higher education community, eLearning is a current issue however, some teachers and students talk of it as a fashion while others are serious to learn and integrate educational technologies (ETS) in teaching and learning practices. E-learning is modern digital environment for pedagogy, learning and education-management using internet and web technologies, which are beyond the control of time and space (Zubair et al., 2013); Young, 2003; Gray et al., 2003; Shimabukuro, 2005). Most of the teachers and students in higher
education use Internet for surfing, messaging, chatting, and blogging thereby learn to add new dimensions to their teaching and learning practices. Thus, use of ETS for preparing a lecture, an assignment, and typing a notification in a word-processor – all refers to (Sife et al., 2007; Kanuka, 2007).

3.1 Technologies

Contemporary education has shifted from its old models to new paradigms where educational applications of ICTs are diverse, for example, they are being used for simple information delivery (digital library) on one extreme and for personalization and adaptation of ETS with user styles on the other end (Abbas & Nawaz, 2014; Chan & Lee, 2007). Or more precisely, eLearning covers a continuum of educational applications with Word, Excel, Access and PowerPoint as the main gadgets but carrying nominal impacts on teaching, learning and administrative practices while conversely, there are virtual learning systems using web-applications for educational deliveries (Sife et al., 2007; Thompson, 2007). There are therefore a wide range of opportunities for higher education to digitize their work environments for effective digital literacy of their teachers, students and administrators (Nawaz & Kundi, 2010c).

3.1.1 Computers

Computers are beneficial for the students not only because they can create a better form of learning but mainly because the knowledge and skills needed to operate the new tools are essential in today's job market. The ability to work with this new technology is perceived as an asset for the future success of their pupils (Abbas & Nawaz, 2014; Sasseville, 2004). Computers started the story of eLearning in higher education. Though the machine has been downplayed by the emergence of ‘connectivity’ and ‘telecommunications’ but no digital system can exist without computers. Users can access and use the resources around the world but all this happens through a terminal (or a computer workstation). In 1980s a real user-friendly machine emerged with the name of PC (Personal Computer) which still continues as the integrating system for all the peripheral digital technologies (Qureshi et al., 2009).

3.1.2 Networks & Telecommunications

Networking is the technology which connects different computers to communicate and thereby share resources over the network. This technology is evolving from simple networks into complicated forms of Internet, intranet and extranet using web-technologies thereby converting the world into a ‘global-village,’ because networking eliminate the geographical and physical constraints in global communication and interaction (Kundi et al., 2014; Kundi & Nawaz, 2013; Zapalska et al., 2004). Networking technologies offer a multitude of tools and techniques based on the communication- protocol of TCP/IP to communicate across the platforms. Thus, a network is a platform (internet, intranets and extranets) decorated with web- based tools of hypermedia and multimedia applications managed through learning and content management systems (Abbas & Nawaz, 2014; Glogoff, 2005). It is therefore evident that Internet is becoming an indispensable tool for learning and social life (Dalsgaard, 2006; Barnes et al., 2007).

The Internet technologies like e-mail/ conferencing on the Web, is usable in assisting teaching however, Web, and most recently WebCT, are the most popular software tools. Most education web sites provide basic course information such as syllabus, schedule, announcements, synchronous and/or asynchronous communication, online testing, discussion groups, conferences, whiteboards, and streaming audio (Zapalska et al., 2004). Networking in HEIs refers to delivering education through network by enabling learners to access study materials as well as establish communication channels between students and teachers (Zubair et al., 2013; Ezziiane, 2007). Thus, increased access to and use of the Internet...
is making a unique contribution to the teaching and learning process and will be an integral part of future educational strategies in HEIs (Mehra & Mital, 2007).

### 3.1.3 Internet & Open Source Systems

With the Internet and computer technology available to most teachers, educational technology becomes increasingly indispensable in the field of education (Abbas & Nawaz, 2014; Oh & French, 2004). Internet-based educational technology can contribute to substantial improvements in education (Laffey & Musser, 2006). Because internet is the largest, most powerful computer network in the world (Manochehr, 2007). Internet is a network of networks to connect local to global levels of private, public, academic, business, and government networks. Internet refers to a universal communications system of hardware and software to connect computers where Web is one of the services available on the Internet. Web is a store of “data-sources that are linked together through hyperlinks and URLs (Wikipedia, 2009).”

Free & Open Source Software (FOSS) has transformed the software industry (Stephenson, 2006). Open source systems are becoming culture in the HEIs, for example, U.S. higher education chief information officers (CIOs) have either adopted or seriously planning in the favor of FOSS (Kundi et al., 2014; Kundi & Nawaz, 2013; Carey & Gleason, 2006). While some material has been available from the start of Internet however, new more and more libraries are becoming virtual learning platforms by uploading increasing data sources online. For example, the University of Texas have made an effort for a bookless library by publishing sixty thousand volumes online and planning to post all their collections online (Laffey & Musser, 2006; Snow, 2006) with open sources, open standards, open architecture, and open communities (Nawaz & Kundi, 2010c).

### 3.2 Roles in Higher Education

The concepts of “ePedagogy (Abbas & Nawaz, 2014; Kuriloff, 2005),” “eCourse (Hvorecký et al., 2005),” “eStudent (Dinevski & Kokol, 2005)” and “eTraining (Blázquez & Díaz, 2006),” all collectively portray a digital picture of teaching and learning environments. High-quality eLearning, however, requires the management and administration to provide moral, political and financial support to the levels of user requirements (Ezziane, 2007). According to the conservative estimates, “the worldwide eLearning industry is estimated to be worth over thirty-eight (38) billion euros (Wikipedia, 2009).”

There are three general approaches to the instructional use of computers and the Internet, namely: 1. Learning about ICTs, where digital literacy is the end goal; 2. Learning with ICTs where technologies facilitates learning; and 3. Learning through these technologies thereby integrating technological skills development with curriculum (Abbas & Nawaz, 2014; Tinio, 2002). Literature confirms that ICTs are being deployed in university settings all over the world with the aim to equip the students with ICT-based skills so that they are ready to work in modern ‘electronic office’ (Sahay, 2004).

#### 3.2.1 Teaching

Researchers have identified five types of teacher-users of eLearning: builders of eLearning tools, tool-users, tool-adapters, tool-abiders and those who are indifferent to the use of computers (Kundi et al., 2014; Kundi & Nawaz, 2013; Johnson et al., 2006). It is suggested that universities should create a large body of tool users. Simultaneously, motivate some of the creative faculty members to play the roles of adapters. These members must be provided with incentives and support in all required aspects. The most important user-type of teachers is the tool adapters, who are skilled users and can adapt/utilize it to fit the student and faculty requirements. Tool adapters should be tenured faculty who enjoy teaching and do not fear technology. The digital literacy program must
focus on creating these types of teachers (Nawaz & Kundi, 2010c).

It is reported that decisions made by teachers about the use of computers in their classrooms are influenced by several factors particularly, the accessibility of hardware and relevant software, nature of the curriculum, personal capabilities and teachers’ beliefs in their capacity to work effectively with technology (Zubair et al., 2013; Albion, 1999). Furthermore, teacher’s anxiety over being replaced by ICTs or deprived of their command in the classroom because pedagogy is becoming more learner-centered this feeling can be reduced and eliminated if teachers develop understanding and appreciation of their changing roles (Abbas & Nawaz, 2014; Tinio, 2002; Qureshi et al., 2009; Kundi & Nawaz, 2010).

3.2.2 eLearning (for Students)

Computers are regarded as beneficial to the students not because these machines can create a better form of learning but mainly because the knowledge and skills needed to operate the new tools are essential in today’s job market therefore, the students’ digital literacy is perceived as an asset for the future proficiency of their pupils (Sasseville, 2004). Research reveals that manipulation of ICTs by students in achieving their educational goals is preferable than teacher’s exploitation of new gadgets (Abrami et al., 2006). The challenges of evolving pedagogy to meet the needs of Net-savvy students is daunting, but educators are assisted by the fact that although these students learn in a different ways than their predecessors, but they do want to learn (Kundi & Nawaz, 2013; Barnes et al., 2007).

Modern eStudents are known by several concepts with regard to their relation with ETS: Computer Geeks/Nerds (T Nawaz & Siddique, 2012; Thomas & Allen, 2006); Millennials, and Electronic Natives (Garcia & Qin, 2007); Net-Generation, Net Genres, and Net-Savvy students (Barnes et al., 2007) and so on. Instead of learning ‘from’ computers, students are able to learn ‘with’ computers in the contemporary constructivist environments (Young, 2003). Given that most students can access various forms of information technology particularly internet, cell phones and cable technologies (Aaron et al., 2004), it suggests that this generation of students is different from their predecessors with regard to their abilities, skills, and readiness to participatory learning (Garcia & Qin, 2007; Nawaz & Kundi, 2010c; Zubair et al., 2013).

3.2.3 e-Administration

ICTs have been found more relevant in educational administration for scheduling and institutional management to improve the time-management of teachers, students and staff thereby reducing costs substantially (Kundi & Nawaz, 2013; Zubair et al., 2013; Sanyal, 2001). ICTs are proving as a major facilitator in the provision of organizational facilities and this role gaining precedence with the passage of time thereby making it unavoidable for all the university constituents to learn ICTs not only in their specialized area rather understand its applications at the institutional and inter-institutional levels (Turban et al., 2004:32). The ICTs are fostering logistics and administrative processes, distribution of materials and institutional communication (Valcke, 2004). Technology developers are responsible to so develop the eLearning products that they serve all the education community including teachers, administrators, district superintendents, legislators etc. (Abbas & Nawaz, 2014; Buzhardt et al., 2005).

Computer literacy is one of the most important skills a person can have in today’s competitive environment as it is transforming “blue-collar workers into white-collar workers (Ezziane, 2007).”
IV. E-LEARNING DEVELOPMENT PROCESS

The experience of introducing different ICTs in the classroom and other educational settings all over the world suggests that the realization of potential educational benefits “is not automatic (Tinio, 2002).” It is rather raising multiple debates over the substance, trajectory, purpose, and implications of ICTs in education, for example, ICTs can become an end in themselves rather than a means to support and enhance education (Nawaz & Siddique, 2012; Sahay, 2004). In the context of globalization, international connectivity, instant communication via Internet and mobile technologies; the universities, all over the world, are confronting huge challenges, both external and internal (Loing, 2005).

The effective integration of ICTs into higher education is a complex and multifaceted process that involves, not just technology but also pedagogy, curriculum, institutional eReadiness, teachers’ digital literacy and consistent financing, per se (Tinio, 2002). The growth of innovative practices in eLearning has developed new skills and novel ways of using them within project teams for eLearning projects (Abbas & Nawaz, 2014; Gray et al., 2003). However, the design and development of eLearning environments must be aligned with the “student requirements (Young, 2003)” because ICTs can facilitate learning, they cannot deliver it thus, to successfully integrate pedagogy and learning models within the appropriate technology is indispensable (Nyvang, 2006).

A research from universities by Lewis & Goodison (2004), reveals that those who were running successful eLearning-initiatives, strongly perceived that the “developments needed to be driven by pedagogy, not the technology.” Likewise, data on eLearning experiences in developed and developing countries provide enough evidence to understand that it is not technology (Kundi & Nawaz, 2013; Jewels & Ford, 2006) rather human and cultural issues which can either work as critical success factors or turn into critical failure variables. For example, culture is a highly influential mediator in the present educational environments wherein pedagogical models are an integral part of the culture of every institute (Nyvang, 2006).

4.1 Approaches to E-learning Development

A variety of approaches are used for the development of eLearning projects in different HEIs (Gray et al., 2003) showing that the pedagogical advantages of ICTs vary with specific contexts (Nawaz & Siddique, 2012; Aaron et al., 2004). Approaches refer to the perceptions about the nature, roles and contributions of eLearning (Aviram & Tami, 2004). If developed and implemented under an appropriate approach, eLearning is beneficial for the teachers, students and education administrators and “may facilitate the development of higher order thinking skills (Abrami et al., 2006; Qureshi et al., 2009).

The development approaches for eLearning projects depend on the eLearning paradigm, which is currently dominating a HEI. For example, under ‘objectivism’ technical rationality is the purpose therefore ‘instrumental’ view of technology guides the project-teams and development trajectory (Abbas & Nawaz, 2014; Young, 2003). On the other end, contemporary constructivist thinking offers a ‘substantive view’ of e Learning (with a belief in the cultural implications of ICTs thereby suggesting ‘collaborative’ approaches to eProjects by involving all the ‘university-constituents’ (Kundi & Nawaz, 2013; Willis, 2006). Thus, if ICTs are perceived as simply tools like other technologies, the development efforts will be more techno-centric but if a ‘big-picture’ of eLearning is perceived, then naturally, the development approaches will tend to be ‘socio-technical’ (Jewels & Ford, 2006; Kundi & Nawaz, 2012b).

Given this evolutionary scenario of eLearning applications, it becomes clear that HEIs are
passing through three stages of evolution and growth: 1. traditional computer-based learning (supplemental use of ICTs); 2. blended (mixed) learning; and 3 virtual learning. These lie on the continuum of two extremes with one extreme of low-tech applications and on the other end are hi-tech environments while in the middle are different forms of blended learning (Beebe, 2004; Heinze & Procter, 2006; Manochehr, 2007; Zubair et al., 2013). HEIs, particularly in developing countries, are voyaging through different levels of blended learning with multiple experimental applications of ICTs in teaching, learning and education management due to the varying availability and accessibility of educational technologies and professionalism of their use (Abbas & Nawaz, 2014; Tinio, 2002; Sife et al., 2007; Wims & Lawler, 2007).

4.2 User-Need Analysis

Most educators accept the premise that, in an ideal world, learning will be delivered in a manner and context that best suits the needs and learning styles of individual learners (Abbas & Nawaz, 2014; LaCour, 2005). The developers need the abilities to identify and analyze user needs and take them into account in the selection, creation, evaluation and administration of computer-based systems and an ability to effectively integrate eLearning-solutions into the user-environment (Ekstrom et al., 2006). For example, the success of eLearning software is measured on how far the product fulfils stakeholders’ needs and requirements on time and within a budget (Ward et al., 2006). Understanding human requirements takes time and effort but these assessments are indispensable in planning the introduction of ICTs to education communities (Hameed, 2007).

To investigate user needs a mix of techniques are used including paper and web-based questionnaires, interviews with teachers and learners, expert review, and direct observation (Gray et al., 2003). However, a sustained collaboration among all the university constituents could foster exchange of ideas and allow all to express their needs and be actively involved in the development process (Nawaz & Siddique, 2012; Juniu, 2005). Similarly, ICT-professionals should work with departmental heads to identify faculty members who can serve as technology liaisons to their home departments. These technology role models can motivate their colleagues to use technology (Reilly, 2005). In an African university experience, researchers found that faculty members have contributed significantly through participation in the evolution of eLearning, particularly in conducting a university-wide needs analysis (Zubair et al., 2013; Thurab-Nkhosi et al., 2005).

4.3 Socio-Technical Infrastructure

A socio-technical infrastructure is made of computer and social networks. It is not simply the provision of computers only rather relations between developers, users, system and institution are given parallel importance and consideration. Stand-alone systems are no more common not in the sense that they are not usable or not used but now they are playing back-office roles (Abbas & Nawaz, 2014; Qureshi et al., 2009). The provision of a robust ICT-based infrastructure is challenging in the sense that it is not a one-shot activity. It is not like that the technical resources are purchased once for all. Computer-technologies are rapidly changing, which require ‘Updates’ by the institutions otherwise they will lag behind fellow and competitive institutes in technological sophistication. So creation, maintenance and updating of technical infrastructure is a process which continues for ever (Nawaz & Kundi, 2010a).

Furthermore, research tells that most of the HEIs opt for cutting-edge technologies however, experience shows that mostly these ‘leading-edge technologies turn into bleeding-edge technologies’ by eating up budgets and delivering nothing special. Therefore researchers suggest to “go with tried and tested systems (Nawaz &
Siddique, 2012; Tinio, 2002).” Similarly, latest technologies are expensive while, “time is right for collaborative action because the time is wrong for any approach other than cost-sensitive, resource-smart deployments (Klonoski, 2005).” An effective technical support also means that users are not only trained in using technologies but continuously assisted by the IT-department in handling recurring problems (Kopyc, 2007).

4.4 User-Training

The success of ETs in higher education depends on the training of teachers because it is them who prepare students as well as administrators as digital users (Abbas & Nawaz, 2014; Oh & French, 2004). The learning of eLearning is a lifelong learning process however, for immediate uses in the universities; users have to quickly learn to use the new technologies. Training is a narrow term than education which aims at preparing someone for a particular job, function, or profession. Education refers to a lifelong learning process with high level objectives of developing moral, cultural, social and intellectual dimensions of an individual and society (Abbas & Nawaz, 2014; Drinkwater et al., 2004). Research asserts that lack of technology integration among teachers is considered a major concern for educators in the perspectives of information based, global society (Gray et al., 2003; Zhao & Bryant, 2006).

Both instrumental and substantive approaches to eLearning recognize the role of eLearning-users (Young, 2003). Instrumentalists believe that technology is neutral and therefore its impacts entirely depend on how they are used for individual to international purposes (Macleod, 2005). While substantive theorists argue that ICTs can be used more effectively with deeper impacts on society by providing maximum possible services to the users (Ezer, 2006). However, use of either instrumental or substantive applications of ICTs in the learning environments squarely depends on the quality of “eTraining (Zubair et al., 2013; Blázquez & Díaz, 2006)” extended to the teachers, students, and administrators (Qureshi et al., 2009).

4.5 Sustained Technical Support

Once the eLearning system is developed and delivered for use, the need for continuous and uninterrupted technical support is required by teachers, students and administrators in handling their hardware and software problems, which are common to any computer application. The significance of this dimension is evident from the fact that almost all the researcher on eLearning in HEIs have empirically proved that successful eLearning projects depend on timely and consistent technical support (Abbas & Nawaz, 2014; Gray et al., 2003; Zhao & Bryant, 2006). However, researchers tell that provision of uninterrupted technical support is challenging therefore most of the HEIs are failing to serve teachers, student and administrators effectively and on continuous basis (Ezziane, 2007; Nawaz et al., 2007). “E-learning offers a complete information technology support (Zubair et al., 2013; Dinevski & Kokol, 2005)” in teaching and learning. Similarly, ICTs are different from all the so far introduced technologies in the sense that they are integrative in their nature. Television, Phone, and Fax technologies did not connect until the computer and networking technologies emerged. Today one can telephone, send a message in multimedia, fax or watch a movie all through a single PC on network (Macleod, 2005). But, critical factor in eLearning is not access to infrastructure (thereby filling hardware-divide) only rather the access should empower the users to get knowledge, skills, and consistent support of organizational structures (Ágerfalk et al., 2006; Qureshi et al., 2009).

V. MAJOR CHALLENGES

CONtemporary research on eLearning reveals that more than half of all ICT-projects become runways, with overshooting budgets, delayed timetables, escalation in decision making and filing to deliver their objectives (McManus & Wood-Harper, 2004:3; Venables & Tan, 2006).
Similarly, though ICTs are emerging in HEIs but the pace and depth of their impact is, “as yet, rather limited (Kundi & Nawaz, 2012b; Baumeister, 2006).” Several researchers have identified the problems for the development, use and integration of ICTs into teaching, learning and educational management (Drinkwater et al., 2004; Bondarouk, 2006; Vrana, 2007; Kanuka, 2007; Sife et al., 2007; Wells, 2007) such as: user resistance, lack of digital literacy, absence of a systematic approach to development and implementation, high rates of system non-completion, lack of management or administrative support, user dissatisfaction and mismatch between new technologies and the institutional context (Qureshi et al., 2009; Nawaz & Kundi, 2010a; 2010b).

Given these problems the impacts of ETS have not been as extensive as in other fields (Oliver, 2002) and these have hardly impacted the actual teaching approaches and practices (Abbas & Nawaz, 2014; Valcke, 2004). The marriage between education and technology has often been rocky (Buzhardt & Heitzman-Powell, 2005) facing problems like, language barrier, absence of prerequisites, technology hurdles and so on (Hvorecký et al., 2005). Given this, eLearning is still used only as a buzzword, and its deep impact on educational institutions is poorly visible (Baumeister, 2006). In this scenario, efforts to integrate ICTs in higher education are reportedly confronting several problems (Nawaz & Siddique, 2012 Dalsgaard, 2006). Similarly, universities in the developing countries are struggling with multiple problems in developing eProjects for eLearning in higher education (Sife et al., 2007; Nawaz et al., 2007; Qureshi et al., 2009).

5.1 Mindset Problems

One way to assess an individual’s approach to computer use is by testing an individual’s attitudes to these technologies because numerous studies have explored individual differences in attitudes towards computers (Graff et al., 2001). For example, understanding teachers’ perceptions of technology integration training and its impact on their instructional practice can help both the technology training programs and eLearning development process (Zhao & Bryant, 2006). As teachers’ attitudes are strongly related to their success in using technology (Kundi & Nawaz, 2012a ; Bataineh & Abdel-Rahman, 2006), students’ use of computer also depends on the perceived usefulness of these resource in terms of effective communication and access to information (Gay et al., 2006). It is however, notable that very little research has been published about students’ perceptions of their computer literacy, especially in third world countries (Bataineh & Abdel-Rahman, 2006; Nawaz & Kundi, 2010c; Zubair et al., 2013)). One of the biggest threats to ICT-enabled projects is resistance to change (Tinio, 2002). Teachers are reluctant to integrate ICTs into their daily scholarly activities and this situation has not changed over the past few years (Nawaz & Siddique, 2012; Sasseville, 2004).

Research shows that technical issues are given priority over the educational change, for example, digital-change management are hardly linked with the institution-wide digital strategies and management (Valcke, 2004). While most educators acknowledge the significance of eLearning, problems continue to recur in the adoption process showing a critical gap between perceptions, theories and practices of teachers (Knight et al., 2006). Thus, there are many problems and concerns related to eLearning such as, low rates of participation, learner resistance, high non-completion rates, poor learner performance (Kanuka, 2007; Qureshi et al., 2009).

5.2 Digital Literacy of the Users

The demand for a universal computer-literacy stems from the manner in which ICTs are haunting-down different aspects of the contemporary life and work (Oliver, 2002). The advocates of social inclusion through ICTs propose a focus on electronic literacy as a key to overcoming the digital divide (Macleod, 2005).
Different groups of people: students, teachers, and employers, have different views about what computer literacy means (Johnson et al., 2006). During the last 25 years, several models and approaches of computer and information literacy have started to emerge (Kundi & Nawaz, 2012b; Ezziane, 2007). Now, digital literacy skills are considered necessary for effective and mindful learning in the contemporary digital environments (Nawaz & Siddique, 2012; Aviram & Eshet-Alkalai, 2006). People acquire their technology literacy in two ways: formally through courses on technology or informally at home/workplace, from friends or by themselves (Nawaz & Kundi, 2010c). The illiterate of 21st century is not the one who cannot read and write rather, one “who cannot learn, unlearn, and relearn (Tinio, 2002).” The definition of computer literacy has evolved overtime with the improvements in technology increased dependence of society on ICTs, for example, 50 years ago when a single computer almost filled the room, computer literacy referred to the ability of programming a computer (Abbas & Nawaz, 2014; Johnson et al., 2006).

Today, when every user owns a computer, computer literacy is defined as an understanding of computer characteristics, capabilities, and applications, as well as an ability to implement this knowledge in the skillful, productive use of computers in a personalized manner (Martin & Dunsworth, 2007). Terms such as computer competency, computer proficiency, and computer literacy are used interchangeably to express digital literacy (Zubair et al., 2013; Johnson et al., 2006).

VI. METHODOLOGY

Literature survey was carried by carefully reviewing the relevant existing studies. Based on the critical review, research variables highlighting the key areas and issues were extracted. As the study is qualitative in nature whereas for qualitative data analyses, a computer based software ATLAS.ti was used. The major variables and sentences of the study were fed into a computer based data analysis program ATLAS.ti, furthermore, coding, extraction of quotes and memos were created for the sake of analysis, understanding and interpretations of the findings and results of the study.

Though in qualitative research, mostly researchers use examining, categorizing, tabulating and recombining for data analyses, however, in this research the researchers have used hermeneutics (James, 1992), discourse (Max, 1990) and heuristic (Moustakas, 1990) analyses to find the fact.

VII. THEORETICAL FRAMEWORK OF THE ISSUE

The schematic diagram of the theoretical framework of the study given below is based on the survey of the existing studies, this model elaborate the relationship and cause and effect of the dependent variable and independent variables of the study. The below given figure 1 gives a picturesque of all the issues and arguments as they are connected and operate together in the developing process of eLearning in higher education. Available technologies and approaches adopted for the development process are mutually interdependent but they collectively determine the whole process. But due to several problems the process is mediated by, particularly, digital literacy of users (or user training) and the perceptions (mindset) of the developers and users. There are several other related factors but the discussed factors have been placed on the top by current researchers.
VIII. RESULTS AND DISCUSSION

ICTs are bringing not only technological innovations, but also social change and have power-implications besides affecting the way people used the information to conceptualize the world (Sasseville, 2004). ICT-related change is the most influential issue for the contemporary educational institutions because this change is not only determining the form of education but also its nature and thus the style of coming generations (Aviram & Tami, 2004). For example, one of the most obvious organizational changes is “the transformation of blue-collar employees into white-collar workers (Kundi & Nawaz, 2012a; Ezziane, 2007).”

The universities have to change in three dimensions: 1. university structures and the interrelations between universities and the private sector; 2. Academic productivity and the relations between change managers or developers and academic workforce; and 3. Digital interfaces for the social relations between teachers and students (UQA, 2001). Since teacher give credence to their academic traditions therefore they view change towards a new practice based in tradition, which can be defined as an anomaly that can hold back change and thus innovation however, teachers view ICT-related change as a re-interpretation of the traditional values (Nyvang, 2003).” The greatest challenge in learning environments is to adapt the computer-based system to differently skilled learners, for example, if it is too complex, the user will be lost, confused and frustrated but too simple or non-systematic environments can engender problems of user-motivation (Kundi & Nawaz, 2012b; Sirkemaa, 2001). Technology is disruptive by nature, which demands new investments of time, money, space, and skills (Kundi & Nawaz, 2012a; Aaron et al., 2004). Furthermore, face-to-face communication is critical for classroom social relationships and interpersonal processes, for example, eLearning have reduced support for social interaction. The emotions can be conveyed through e-mail or chatting but it cannot replace the socio-emotional interaction (Abbas & Nawaz, 2014; Russell, 2005). Taken together, barriers in the use of eLearning gadgets can make technology use frustrating for the technologically perceptive, let alone the many teachers who may be somewhat techno-phobic (Ezziane, 2007).”

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Figure 1: Schematic Diagram of the eLearning Development & Use in Higher Education

Challenges in Development of eLearning Systems in Higher Education of the Developing Countries

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IX. CONCLUSIONS AND FUTURE SUGGESTIONS FOR IMPROVEMENTS

Although eLearning is all due to the availability and accessibility of digital technologies for both the developing and developed countries, there are several other factors which interfere with the eProjects for introducing ETs in higher education. The process and problems are both similar as well as different from country to country, which must be understood by the developing states otherwise compatibility problems are reportedly very common. Research tells that although most of the time leading-edge technologies turn into bleeding-edge technologies but in reality most of the HEIs are adopting latest gadgets which are giving more problems than services. Similarly, researchers assert that contextual-compatibility is the key to successful eProjects while most of the institutions in developing states are borrowing models (approaches) from advanced countries, which is also a well published critical failure factor.

The context of an institution where new eLearning systems are introduced includes many things but most critical are the users. Their mindset and digital literacy is reported over and over as the critical success and failure factors for eLearning development and use practices. It is now becoming increasing possible for the developing countries to arrange for the infrastructure and other eLearning technologies. Similarly, they can have one or another approach to their project. These are comparatively controllable variables but developers and users are not easy to make available in the required form. Their behavior depends on their perceptions of technology, meaning that if they consider ETs positively, they will become a support to the development process but if otherwise, they pose serious threats to the eLearning projects in higher education. The perceptions depend on knowledge about ITCs thus; users’ digital literacy can either make or break the destiny of eProjects for eLearning.

Abbreviations

IS: Information System
DV: Dependent Variable
IVs: Independent Variables
IT: Information Technology
eLearning: Electronic Learning
ICTs: Information and Communication Technologies
FOSS: Free & Open Source Software

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