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Evolution of eLearning in HEIs Challenges & Opportunities for Developing Countries like Pakistan

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Abstract The effective use of information and communication technologies (ICTs) in higher education institutions (HEIs) is a global issue for individual researchers, institutions, governments and societies as a whole. New technologies offer opportunities for the developing countries to resolve their long standing problems of national/international isolation and mass-education. Several research reports are posting positive results of eLearning applications around the world however; introducing digital environments in higher education is neither automatic nor devoid of challenges and problems. There are both development and use problems for the developers, users and institutions. Furthermore, three eLearning systems are available to the HEIs: traditional, blended and virtual learning, which have relative merits and demerits but their choice is not personal rather based on the availability of resources and professionalism. Most of the poor and least developed states are starting with traditional computer-based learning, developing states are experiencing with blended systems while advanced states are researching and practicing virtual systems. This paper is an effort to portray a picturesque of the same evolution of eLearning in HEIs of developing states like Pakistan by unearthing leading challenges and opportunities available.

Keywords: HEIs; ICTs; Traditional, Blended, and Virtual eLearning; eTeachers; eStudents; eAdministrators;

1. INTRODUCTION

e Learning ranges from a supplemental use of computers to entirely depending on ICTs for teaching, learning and education management. However, modern sophisticated uses of eLearning in some parts of the world has not reached this level instantly rather along the development trajectory of the ICTs themselves (Beebe, 2004; Heinze & Procter, 2006; Manochehr, 2007). As the computers and communication technologies became more and more advanced and increasingly supportive in the education environment, the eLearning models grew into more

sophisticated tools for real-time eTeachers, eStudents and eAdministrators. Broadly, eLearning has gone through the following stages over the past decades:

1. Traditional computer-based learning: In 1970s and 1980s, eLearning was called computer-assisted learning, computer-based training or technology-based training wherein computer programs were mostly didactic in approach with 'knowledge-transmission' as the purpose. The teachers used to transmit the knowledge rather than facilitating the learner and learning process (Gray et al., 2003; Dinevski & Kokol, 2005).

2. Blended learning: In 1990s other forms of educational-media came into market to supplement old eLearning by offering discussions and debates through communication technologies thereby creating a kind of 'negotiated-knowledge' (Gray et al., 2003; Valcke, 2004). In the late 1990s, innovations in computer hardware, computer software, and Internet technologies introduced a line of education products that established the eLearning industry (Baucus & Baucus, 2005).
3. Virtual learning: By the end of 1990s, virtual learning environments (VLEs) have emerged with tools and techniques for the course-management and interactivity of teachers and learners through a long line of opportunities particularly, the web-based applications, which enable not to simply deliver knowledge rather empower learners to develop research skills and capitalize on web to 'harvest knowledge' (Gray et al., 2003; Ezer (2006).

Given this evolutionary scenario of eLearning applications, it becomes clear that HEIs have been 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 (see for example, Oliver, 2002; Young, 2003; Beebe, 2004; Heinze & Procter, 2006; Manochehr, 2007). 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 (Nawaz & Kundi, 2010a, 2010b).

2.1 Traditional Computer-based Learning

Conventional teaching emphasizes content where course is written around textbooks and teachers teach through lectures and presentations and so design the learning process that the contents could be rehearsed (Oliver, 2002). Likewise, traditional computer-

mediated instruction is based on a certain level of technical rationality and objectivist and behaviorist ideas, which emphasize that knowledge and reality exists out there, therefore the pedagogy takes the learner from basic to applied knowledge and ultimately into practice (Young, 2003). In traditional computer-based learning there is low collaboration with teacher-centered learning contexts where there is one-way communication from the teacher to the learner and learning materials are disseminated in print format (Allan, 2007). However, eLearning is now moving away from the traditional computer based learning (CBL) (Manochehr, 2007).

2.2 Blended Learning

Blended learning is a combination of face to face and computer based teaching and learning or a combination of traditional classroom practice with eLearning solutions (Tinio (2002). Since blending refers to the mix of traditional and digital methods of teaching, learning and administration, therefore all the institutions, which are beginning to computerize, come under the general umbrella of blended learning. The research shows that eLearning is enjoying a growing maturity, blending the technology with other forms of delivery such as face-to-face teaching (Gray et al., 2003). It is a shift from computer-based instruction where students learn from technology, to enabling students to learn with the technology (Young, 2003). Blended learning is also called "multi-modal learning (Beebe, 2004)." It is a learning facilitation that incorporates different modes of delivery, models of teaching, and learning styles, introduces multiple media to the dialog between the learner and the facilitator (Heinze & Procter, 2006). Furthermore, blended eLearning applications within the higher education sector are mushrooming (Kanuka, 2007; Kundi & Nawaz, 2010).

2.3 Virtual Learning Virtual learning (VL) dates back to 1840, when Sir Isaac Pitman, the English inventor of shorthand, came up with the idea of delivering instruction via correspondence courses by mail. But only with the advances of modern technology has

distance education grown to a multibillion dollar market (Spallek, 2003). Virtual university (VU) at vu.edu.pak is the best example of virtual learning with zero-physical contact but virtually 100 percent connected with its eStudents. The VU is a potent vision for the future of higher education to utilize new ICTs and radically restructure higher educational provision. It is a 'university without walls', an un-packed virtual institution thus 'The University' as an institution, seizes to exist (Goddard and Cornford, 2007). Where content and instructions are delivered through Internet, intranet, extranet, satellite TV, and CD-ROM with multimedia capabilities (Manochehr, 2007). The university, then, becomes far more externally oriented; an intermediary on the global stage, acting as collaborator, client, contractor and broker of higher education services (Goddard & Cornford, 2007)

2. CHALLENGES

"More than half of all information technology projects become runways - overshooting their budgets and timetables while failing to deliver on their goals (McManus & Wood-Harper, 2004:3)." Similarly, "While networked learning is making its appearance in universities, its overall impact is, as yet, rather limited (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; Nawaz et al., 2007; Nawaz & Kundi, 2010a & 2010b).

2.1 Development and Implementation Issues

eLearning is not merely another medium for the transmission of knowledge but that it changes the relationship between the teacher or trainer and learner. It requires new skills, competences and attitudes amongst those planners, managers, teachers and trainers who are going to design and develop materials and support learners online. Thus, the development of innovative practices and the generation of new competences in eLearning are fast becoming key issues (Gray et al., 2003). The focus is frequently placed on design

and developing ICT-based environments and insufficient attention is given to the delivery process (McPherson & Nunes, 2004; Nawaz et al., 2007; Nawaz & Kundi, 2010b).

Valcke (2004) presents his finding in the manner that there are "uncomfortable" and "comfortable" zones for the eLearning developers and users. Valcke argues that ICT is no more an issue, which can be handled in isolation from the educational, administrative and logistic issues. eLearning project management places the professional development and the organizational management in a critical and uncomfortable position. Loing (2005) suggests that in the background of emerging ICTs, the developers and users are facing multiple 'internal and external' challenges for the development and use of eLearning. According to another researcher (Nyvang, 2006), the implementation of ICT in higher education is not a trivial process rather it poses a number of challenges and problems to the university authorities.

University constituents hold differing perceptions and attitudes about the role of technology in the classroom and at the same time power structures in higher education, and insufficient communication among the various groups' present obstacles to real technological and educational development (Juniu, 2005). There is evidence on the fact that during the eLearning project development very little communication occurs between users and ICT professionals or developers (Shank & Bell, 2006). In the development and use practices of eLearning, teachers apprehend that they are being controlled by machines, which are eating up the human factors from the workplace (Vrana, 2007; Nawaz & Kundi, 2010a).

a. Lack of Local Research

The main reason for the gap between theory and practice is the 'Lack of Research' about the domestic environment to record the local context, user views and requirements and thereby plan eLearning projects accordingly. The issue of lack of research in Pakistan is frequently discussed in academic institutions

with lack of funding and facilities are presented as the major reasons for the problem. Whatever the reason, it is not possible to harness new ICTs without first measuring the pulse of local context (Memon, 2007; Hameed, 2007). The researchers report over and over that technology integration in any context depends on how the technology fits into the existing social purposes and practices of a community (Koo, 2008). Similarly, HEC's website asserts that "The leveraging of ICT to support higher education reforms and the development of a research culture in Pakistani universities is essential (HEC, 2008)."

b. Borrowed Models of eLearning

Developing countries commonly trend to follow the tracks of development in the developed world. However, Walsham (2000:105), a noted researcher in information systems, argues that "the approaches taken from the industrialized countries may not transfer effectively to the different environments of the developing countries." The research confirms that an eLearning model in US cannot be implemented in some Asian country with the expectations of same results (Crichton & Kopp, 2006; Mokhtar et al., 2007; Koo, 2008). There are several differences in the context of both the countries. The demographic, institutional and technological aspects of every country are different from the other. The developing countries are borrowing foreign models which are also foreign to their environment therefore; the wanted results are emerging neither in volume nor in quality unless a contextual rethinking is accelerated. For example, if a Pakistani HEI uses computing-curricula from USA for a degree or course, it cannot be helpful to our graduates because Pakistan still needs a large body of computer-users or instrumental use of ICTs, while the HEIs in USA have mostly shifted from the instrumental to substantive use of eLearning tools (Nawaz & Kundi, 2010b; Kundi & Nawaz, 2010).

c. Lack of User-Participation

As research suggests, the biggest hurdle in contextualizing the eLearning environments is the lack of participation in the development

trajectory of eProjects. The projects mismatch the context because the users are not contacted thoroughly to explain different aspects of their context before the developers who can then embed these user requirements into the new digital systems. Lack of user is reported around the world. Users lodge complaints about their deprivation from having a say in the eLearning systems which are supposed to be used by them. The problem is more sensitive and touchy in developing countries where demographic differences are far more tense and implicative (Nawaz & Kundi, 2010a). There are many problems for this lack of user participation including demographic differences and diversities in perceptions and attitudes about ICTs, their development and uses.

2.2 Use and User Concerns

Given the differences of perceptions (Young, 2003) users behave differently while using the eLearning tools and techniques for teaching and learning purposes. A key challenge for institutions is overcoming the cultural mindset whereby departments and individuals act as silos, keeping information and control to themselves (LaCour, 2005). Moreover, the training that educators do receive does not always match with their educational needs, because the faculty is rarely involved in the decisions about technology and design of new strategies for technology-integration (Juniu, 2005). In developing countries, "ICTs have not permeated to a great extent in many higher learning institutions in most developing countries due to many socio-economic and technological circumstances (Sife et al., 2007)."

1. System Compatibility: The greatest challenge in learning environments is to adapt the computer-based system to differently skilled learners. If the environment is too complex the user will be lost, confused or frustrated. On the other hand, too simple or non-systematic environments cause motivational problems (Sirkemaa, 2001). Technology is by nature disruptive, and so, demands new investments of time, money, space, and skills and changes in the way people do things (Aaron et al., 2004). Furthermore, face-to-face communication is critical for classroom social

relationships and interpersonal processes while, online technologies have reduced support for social interaction. Although emotions can be conveyed through e-mail or chatting, it does not replace “the fundamentals of our socio-emotional well-being (Russell, 2005).” Thus, “barriers can make technology use frustrating for the technologically perceptive, let alone the many teachers who may be somewhat techno-phobic (Ezziane, 2007).”

2. **Dependence on Technical Department and Professionals:** Juniu (2005) points out a very critical problem in the use of eLearning facilities and that is the dependence of teachers, students and administrators on the ICT-department or technical support needed by the users across the using process. The faculty users do not only depend on ICT staff for technological support but also face pressures from the pedagogues to demonstrate the role of technology in supporting constructive, authentic, and cooperative learning. Research suggests that only the technology training cannot ensure better use of new tools, users also need continuous technical and human resource support for technology integration (Zhao & Bryant, 2006).
3. **Change Management:** Within universities, the implementation of ICT is not an easy task for instance, decision makers and academicians are sometimes reluctant to change curricula and pedagogic approaches; teaching staff and instructors lack incentive and rewards in a system where professional status and career trajectories are based on research results rather than pedagogic innovation (Loing, 2005). There are many obstacles for implementation of the ICT in universities. Some of them are classical, as are e.g. inertia of behavior of people, their resistance to changes, etc. If the ICT should serve properly, it should enforce an order in all folds of the university life. People who loose their advantage of the better access to information have a fear from order. Regrettably, managers sometimes belong to this category (Vrana, 2007).
4. **Individual Challenges:** Technological change is not perceived as a collective experience

rather a personal challenge therefore, solutions to the problem of integrating technological innovations into the pedagogy are more focused on the individual teachers (Sasseville, 2004). Some teachers are strongly advocate the technological innovation but may resist in accepting technology as an integral part of the learning process. These divergent reactions and concerns have thus created a continuum that represents various attitudes towards technology (Juniu, 2005). Similarly, “Inexperience may lead to developing learners’ anxiety (Moolman & Blignaut, 2008).”

5. **Political Sustainability:** Political sustainability refers to the acceptance of new system by the administrators handling the policy and leadership matters in the universities (Tinio, 2002). Particularly, in a bottom up approach, the grass-roots may be better placed to understand and implement innovation, but there can be a lack of physical and political support (Aaron et al., 2004). In the case of eLearning projects initiated at ground (bottom-up), research informs that there is a lack of feedback towards higher levels of decision and general policy, and little impact on strategy definition and implementation thereby creating resistance on the part of administrators to help and cooperate (Loing, 2005).

a. Ineffective User-Training

The gap between user and ICTs is possible if user-training is not undertaken effectively. Almost every research recording the perceptions and attitudes of eLearning-users reports the dissatisfaction from the training facilities, contents and duration with regard to eLearning tools for teaching, learning and administrative purposes (see for example, Gray et al., 2003; Loing, 2005; Johnson et al., 2006; Wells, 2007; Mehra & Mital, 2007). Albion (1999) noted this some 18 years ago that “as community expectations for integration of information technology into the daily practices of teaching grow, it will become increasingly important that all teachers are adequately prepared for this dimension of their professional practice.”

User training includes the training of both the developers or ICT-professionals and Non-ICT users. Both the groups need computer literacy of the levels of their requirements. "A large body of literature supports the idea that technology training is the major factor that could help teachers develop positive attitudes toward technology and integrating technology into curriculum (Zhao & Bryant, 2006). Teachers need training for technology-integration "in curriculum areas that can be replicated in their own classrooms not training that focuses on software applications and skill development (Schou, 2006)." The developers need such 'computing-curriculum' which covers not only the technological aspects of computer hardware and software but also the human and organizational dimensions of these tools when placed in use.

b. Issues of Sustained Technical Support

It is widely argued that "eLearning offers a complete information technology support to these innovations (Dinevski & Kokol, 2005)" in teaching and learning. Similarly, as explained across the thesis that ICTs are different from all the so far introduced technologies in the sense that they are integrative in their nature. For example, TV, Telephone, Fax technologies did not connect with each other until the computer and networking sciences came out. Today one can telephone, send a message in multimedia, fax or watch a movie all through a single PC on network. However, the key element in all of this is not access to infrastructure (bridging the hardware-divide) only rather the access should help users in getting knowledge, skills, and consistent support of organizational structures to achieve social and community objectives (Macleod, 2005; Ågerfalk et al., 2006).

2.3 The Contemporary Conditions

a. Gaps between Theory and Practice of eLearning

There are several gaps between whatever is presented in theory and what happens in reality and this is evident at all levels of governments, institutions, groups and individuals in the eLearning environments of developed and developing countries including the HEIs of Khyber Pakhtukhwa, Pakistan. For example, "when formulating policy,

administrators tend to favor the reformist approach, but in practice they are generally technocratic (Sahay, 2004)." Thus, "there is a gap between the rhetoric about information society and knowledge economy on the one hand, and the practical approach to ICT and its implementation at institutional level on the other hand (Loing, 2005)."

b. Multiplicity of Digital-Divides

The multiplicity of perceptions, theories, and attitudes of users towards ICTs creates digital divides within the environment of higher education (Juniu, 2005). The digital divide in higher education refers to the "division of knowledge, expectations, and needs that, in turn, influences the access to information about what technology works, what technology is needed, and how such technology should be integrated in the classroom (Juniu, 2005)." A commonsense approach to overcoming this gap is to develop sustaining partnerships among students, faculty, academics, computing staff, and administrators (Kopyc, 2007). Those who support technology, they seek for it and therefore reduce the impacts of digital divide for them. But the users who don't the support technology; they adopt ICTs passively thereby widening the digital divide for them. The digital divide classifies the individuals, communities, cultures and nations in terms of access to ICTs, Internet and online resources (Moolman & Blignaut, 2008).

c. Failure to Catch-up with Paradigm-Shifts

Connected with the preceding point of digital divide, we are still stuck with the old methods of teaching, learning and educational management. Our teaching is still teacher-centered and student-centric pedagogy is yet in the documents and theory or at the most in discussions. The market is changing fast but our education system, particularly higher education is not catching up with the emerging demands of information society. Afghan (2000) notes that in Pakistan "the gap between the technological skills needed for the new economy and the traditional education institutions is increasing fast." And a researcher asserts that "traditional institutions are obviously not in a position to cope with

this growing demand in any systematic way (Baumeister, 2006)."

3. OPPORTUNITIES

Education determines, more than anything else, a country's prospects for human development and competitiveness. Fortunately, the information revolution offers some extraordinary opportunities in education (MoST, 2000). Common sense tells that we should teach different learners differently. Parents demonstrate this intuitive wisdom when they communicate differently to their children according to their specific ages (Spallek, 2003). Electronically supported processes in the teaching and administrative spheres do not seem to be displacing traditional ways of doing things. Rather, the outcomes are often a matter of the new 'virtual' and the old 'traditional' notions of the university co-existing in a tense relationship (Goddard & Cornford, 2007). Universities and even smaller departments within organizations are becoming capable to afford sophisticated digital systems (Ezziane, 2007).

3.1 Global Availability of ICTs

Internet and WWW has opened a wide range of learning opportunities for both the developed and developing countries. This is particularly significant for developing countries that have limited and outdated learning resources. Likewise, these new technologies also offer access to resource persons—mentors, experts, researchers, professionals, business leaders, and peers around the globe (Tinio, 2002). The developing countries are not supposed to produce hardware because firstly, hardware is becoming inexpensive as well as a huge number of 'Branded Computers' are transported to the developing and poor countries, which are hi-tech but very cheap in comparison to the new computers of same model and specifications. So availability of hardware is not a big deal in the developing world. Similarly, software is also available not through standard channels rather piracy but with the inception of Web 2.0 and FOSS, it is gradually becoming very cheaper for the developing countries to capitalize on the free-of-cost software that is available online and

which is also coming in a variety to serve different purposes of applications in the teaching, learning and administrative functions in the HEIs.

3.2 Free and Open Sources Systems (FOSS)

The history of social software is as long as the history of computers itself, for example, it took the Web less than four years to attract 50 million users while radio needed almost 40 years to gain the same number of users (Mejias, 2006). While some research material has been available electronically from the first days of the Internet, libraries are putting more and more material on the Web and thus becoming virtual libraries. For example, the University of Texas made a move toward a bookless library system by posting 60,000 volumes online and trying to bring all their collections online (Snow, 2006). Carey & Gleason (2006) note that open source systems are becoming culture in the HEIs, for example, in the February 2006 survey of U.S. higher education chief information officers (CIOs), it was found that two-third of the CIOs have either adopted or seriously planning in the favor of FOSS. This shift is being innovated by the instructional technology (IT) professionals and academic computing faculty in higher education.

3.3 Local ICT Industry and ICT-Professionals

ICTs are no more meant for the elite or privileged classes of the world. These are available, accessible and affordable to a wide range of nations and world citizens. The developing countries are said to be the major beneficiaries of these technologies provided they effectively plan their integration into their economies. The biggest opportunity available to them is the growth of local ICT professionals who are basic to the successful use of new technologies. Pakistan can capitalize on its 'local ICT resources' to bring digital revolution. During the last decade Pakistan is taking visible steps in this regard. A huge amount of money has been invested in computerizing the HEIs to produce local ICT professionals, which are indispensable like infrastructure (Bajwa, 2006; Hameed, 2007). Given the benefits of using ICTs in educational business, all the nations are trying

hard to digitize thereby casting mounting pressure on the HEIs to play active role by making local availability of knowledge and skills and, as a result, regionally engaged universities can become a key local and national powerhouse for development, especially in less developed regions of the globe (Goddard & Cornford, 2007). HEIs in Pakistan are generating more than 6000 ICT-Graduates annually (HEC, 2008).

3.4 Local/ National/ and International/ Partnerships

The use of new collaborative technologies requires team work more than we are used to. Networking and social software helps users in working collaboratively while still preserving their personal preferences and styles (Juniu, 2005). The collaboration requires partnerships between the university constituents (teachers, students and administrators) as well as at the national (partnerships between the universities and public and private sector) (Baumeister, 2006) and international partnerships between world organizations and states (Tinio, 2002; Kopyc, 2007). For example, the emergence of a strong Indian IT industry happened due to concerted efforts on the part of the Government, and host of other factors like private initiatives, emergence of software technology parks, and public private partnerships (Mathur, 2006).

Likewise, partnerships of universities with outsiders is in variety including collaboration with other educational institutes, NGOs, government agencies, multinational enterprises (MNEs), UNO and national/international outsourcing companies providing eLearning solutions. Tinio (2002) contends that public-private sector partnerships in ICT-based projects are a new strategy that is gaining currency in several ministries of education particularly, in developing countries. These partnerships reveal in many forms like, private donations, government grants, and provision of equipments and technical assistance in planning and using available resources. During the mid-1990s, SDNP of UN in Pakistan appeared as the very first external partnership for the use of ICTs for providing

Internet, email and networking services in Islamabad and through the same collaboration, several individuals and organizations were trained in ICTs and networking (Hameed, 2007).

3.5 Growth of Information-Society/Culture

The shift from traditional modes of life to modern life styles is characterized by several new dimensions. The traditional societies are turning into 'information and knowledge societies' where societies are switching from isolated stance to global and collaborative trends at the global level with collaboration as a critical norm in the culture (Valcke, 2004). Our world's culture is no longer only literary and artistic, it is also technologic and scientific and at the crossroads of these two aspects, refusing this would reflect the inability to integrate into modern societies (Sasseville, 2004).

ICTs have created new societies, which are discussed under different concepts including 'information societies' (Sasseville, 2004; McPherson & Nunes, 2004); knowledge societies (Aviram & Eshet-Alkalai, 2006; Klamma et al., (2007); and open information society (Bajwa, 2007) with knowledge economy (Hameed, 2007). The higher education commission (2008) aims to ensure that a comprehensive ICTs strategy is implemented to develop a knowledge-society in Pakistan.

4. CONCLUSIONS

4.1 Critical Failure Factors (Problems)

There are both internal and external challenges and problems for the development and use of eLearning options in HEIs. The research studies are constantly identifying problems relating to ICTs, approaches and methods for their uses, design and development methods, and the changing trends in these areas. Teachers, students and administrators are facing common as well as different challenges as are the developing and developed countries. It is however, widely reported and broadly accepted that it is not the technology, which is a problem rather the human, social and political problems make or break the digital opportunity initiatives in any

organization including the HEIs. Asian Development Bank (2005) in its Evaluation of SAP:PAK 2005-08 for the Social Sectors in Pakistan reports that "there has been no shortage of well-intentioned policies, strategies, and targets for improving social sector performance in Pakistan, but the level of policy implementation and attainment has been extremely limited."

a. Contextual Disparities

The literature review deals with the contents and role of contextual factors in the development and use of eLearning facilities in HEIs of the world. Several researchers have underlined the challenges associated with the context of eLearning (see for example, Oliver, 2002; Nyvang, 2003; Aaron et al., 2004; Loing, 2005; Cawson, 2005; Macleod, 2005; Ehlers, 2005; Baumeister, 2006; Stephenson, 2006; Hameed, 2007). The central theme of all these contextual contents is that eLearning tools and techniques can only be used effectively if their development and use is compatible with the all the contextual elements of the workplace where users practically use the technologies. This concern is very well supported by this research as almost all the statistical analysis on the relationships between different factors of eLearning development and use reveal that the interdependencies are networked. 8 out of 12 tests of significance reject the null hypotheses thereby indicating the role of contextual factors.

b. The Role of User-Perceptions and Attitudes

Due to the demographic disparities, users hold different conceptions of ICTs and eLearning therefore express varying attitudes in the development and use of these tools. Given that the perceptions of every developer and user of ICTs vary (Sasseville, 2004), there is a multiplicity of user-theories forming a continuum of approaches about the nature and role of ICTs and attitudes about the extent of change required (Kopyc, 2007). There is a continuum of perceptions and attitudes of eLearning-users, with those who dislike information and communication technologies (ICTs) on one extreme and those who are their promoters on the other end, while many groups can be located at different points

between the two extremes (Nawaz & Kundi, 2010a).

c. Demanding Nature of Educational Technologies (ETS)

Given the global availability of educational technologies, researchers are reporting that instructional technologies have staged a platform of opportunities for all the HEIs in the world and these are more profitable for the developing countries in terms of solving their long standing education issues along with other economic and political problems. For example, online education facilities are helping the developing nations to solve their problems of accessing masses for execution, which has not been possible through providing physical education facilities at that large scale (Nawaz & Kundi, 2010b). Similarly, ICTs are helping less advanced countries to reduce their sense of isolation in the world by connecting the world community online through internet facilities to learn, enjoy and do business and politics.

In the developing states, educational technologies are not the problem in themselves rather their availability and then their taming for the individual and organizational requirements is a challenge for both the developers and users (Nawaz & Kundi, 2010a). The biggest technological issue for the countries like Pakistan is the creation of country wide digital infrastructure, facilities and services at every HEI level. At the institutional level, the widely reported technological problems relate to the existence and support of technical unit in the institute. Users need continuous and timely help from the technical department, which is reportedly mostly unavailable. Thus the dependence on the technical department and staff is a big issue for the eLearning users.

d. Complexity of Development and Use Practices

Literature review and the empirical study both give a very challenging nature of developing and using eLearning solutions in the HEIs of both the developed and developing countries. Theoretically, collaborative development is preferred however, pragmatically; there is a multiplicity of complaints about the

technically deterministic nature of eProjects. Again in theory, development has to be based on the user and organizational requirements of teachers, students and administrators and HEIs, but in reality, developer's theories prevail. Users are rarely involved in the development activities rather they are given developed systems, which are then leaned to be used by the users. Thus, overall there is lack of user-participation in the development. Similarly, use depends on the willingness of users and user training of technology. If users are involved in the development process they are naturally alienated to the new system. Then adding fuel to the fire is widely reported weaknesses in the user-training. Teachers are the leading complainers about the inadequacy of technology-related training. The contents and methods of ICT-related training are heavily criticized by the users and mostly termed as irrelevant (Nawaz & Kundi, 2010b).

4.2 Critical Success Factors (Prospects)

a. Top-Management Support

Almost every researcher in the field of eLearning have identified 'top-management-support' as a critical factor in the success or failure of an eProject for HEIs all over the globe. The support and facilitation from government is on the top but once the government is taking interest then the commitment and involvement of the top management within every institution makes the difference. Tinio (2002) asserts that the role of top management is central in the integration of ICTs in education because many teacher or student-initiated eLearning projects have failed due to the lack of support from above. What ensures the successful implementation of a strategic plan for educational technology is the "assurance of support from the senior administrative level (Stockley, 2004)" such as, government from outside and top executives from within the HEIs. While giving bad report on the 'Sector Assistance Program Evaluation for the Social Sectors in Pakistan' Asian Development Bank writes that the main reason for this underperformance is that "much of the time there was insufficient political or bureaucratic support for stated policies, at least by those allocating financial

resources and with the power to influence outcomes (ADB, 2005)."

b. Robust ICTs Infrastructure

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. Gray et al., (2003) report, after studying a group of universities running successful eLearning projects, that "the success of the project was often dependent on the skills and quality of technical support provided to end-users." This support includes the technical-infrastructure manned with technical talent such as network managers, web administrators, security specialists etc., but universities are facing challenges in preparing IT-workers for new digital environments (Ezziane, 2007). An effective technical support also means that users are not only trained in using technologies but continuously updated about the user and possibilities created by these gadgets (Kopyc, 2007).

c. Collaborative Development

The Oxford Dictionary defines collaboration as 'work together' and 'cooperate with the enemy.' The second meaning is striking and demanding. Collaboration in the development of eLearning environments refers to the cooperation between the developers and users during the user-needs analysis, design, development, implementation and user training. Even though they hail from different backgrounds with reference to ICTs, they have to collaborate by creating mutual understanding in the development and execution practices of eLearning in HEIs. ICTs can enable developing countries to expand access to and raise the quality of education but it requires careful consideration of the interacting issues of policy and politics, infrastructure development, human capacity, culture, curriculum and pedagogy (Tinio,

2002). At the same time latest digital options are expensive while, “the time is right for collaborative action because the time is wrong for any approach other than cost-sensitive, resource-smart deployments (Klonoski, 2005).”

Corporate training model does not work and the university's model of past traditions does not easily and effectively accommodate the integration of technology innovations rather there is need to get all stakeholders together (developers and users) as the first step in the development of new education models (Kopyc, 2007). Similarly, unless other simultaneous innovations in pedagogy, curriculum, assessment, and institute's organization are coupled to the usage of instructional technology, the time and effort expended on implementing these devices produces few improvements in educational outcomes - and reinforces many educators' cynicism about fads based on magical machines (Mehra & Mital, 2007). Furthermore, there are many similarities in the ways of implementing, operating and using the ICT at different universities therefore, there is a rationale for cooperation in the ICT issues among universities (Vrana, 2007).

d. User-Participation

The significance of user participation in the development and use of eLearning is the main route to contextualizing the new technologies. When users are not heard, the developers mostly embed their self-conceived user-perceptions into the system, which then appear incompatible with the real user-demands. Thus, in the context of eLearning projects, “user empowerment is the granting of unprecedented decision-making powers to the primary agents in education – teachers and students (Shimabukuro, 2005). For this purpose, Reilly (2005) suggests the appointment of a ‘Role Models from the User-groups’ who will work as a disciplinary insiders or faculty peers in their home departments and motivate their colleagues through discourse on the advantages of ICTs for users. The researcher further argues that mostly ICT-training is extended by the Technical experts of ICTs however, “faculty

members who use technologies may actually have a better grasp of the best applications in their own disciplines.”

e. Contextualizing the eLearning Initiatives

UNESCO proposes ICT-diffusion strategies to its member states, which are: a. creates an education system, which is based on your social and cultural realities; b. makes it accessible to all; c. replaces the traditional rigid and culturally alienating education models with flexible and more diversified and universally affordable systems based on ICTs (Sanyal, 2001). The research reveals that those HEIs, which opted for leading-edge technologies hardly, achieve long term objectives from the system. It is better to experiment with tested digital gadgets (Tinio, 2002). Similarly, Tran et al., (2005) have found that system costs scale-up during the development process, which endangers the systems sustainability, therefore researchers suggest that there is need “to design a technology-based model within the context of the existing support and resource infrastructures.” Thus, the eLearning solutions must be compatible with the human and contextual factors of any country. Furthermore, domestic digital models need to be developed through domestic research because the policy of ‘one-for-all’ paradigm is proving problematic in several countries (Nawaz & Kundi, 2010).

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