Role of Contextual Factors in using eLearning Systems for Higher Education in Developing Countries

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Abstract

The same basic computing facilities are available in most of the Asian countries like Pakistan; however it is never possible to attain the same outputs from digital systems working either in public or private sector. This difference emerges from the impacts of contextual factors which can make or break the objectives of a digital move in any sector including higher education. There are personal, organizational, and social contexts which create a particular culture or lifestyle of the inhabitants. If these contexts are in favor, the digital revolution happens in a spell of time but if context is either neutral or rival then the developers and users of eLearning systems have to take account of all the possible influences emerging from any context while developing, implementing and using the new digital devices in a particular work environment. This paper extracts evidence from the literature to uphold the arguments tabled in this abstract.

Keywords: ICTs, eLearning, HEIs, Digital-Literacy, Internal-Context, External-Context, Demographic-Attributes

1. INTRODUCTION

Information and communication technologies (ICTs) have obvious potential in education however, the development, use and change management of eLearning happens within a particular context. The contextual factors influence the eLearning theories and practices, which must be understood by the developers and users of eLearning (Nawaz & Kundi, 2010a). The context is multifaceted (includes community, culture & technology) and becomes critical when understanding implementation of ICTs in education. The context of an organization like higher education institution (HEI) is made of internal and external elements (Nawaz et al., 2011c). Internal factors are the human characteristics and the organizational attributes while, external context is made of government ICT-policies and the broader social environment (Nawaz, 2012c).

The research studies show that the contextual factors are either a support or obstacle in the process of eLearning development and use. System developers need to design an eLearning model within the context of the existing support and resources (Cagiltay et al., 2006). There is no universal eLearning-model to fit every context rather learning has to be conducted within the culturally defined contextual frameworks (Stephenson, 2006). eLearning is a multi-dimensional concept which needs to be comprehended in terms of its relationship with the social environment within which it is applied, meaning that a successful eLearning model in UK may not be as successful in Pakistan (Zubair et al., 2013).

Although, several benefits are emerging from eLearning systems, difficulties can often occur when systems are not developed according to the learner characteristics such as nationality, gender, and cognitive learning style (Graff et al., 2001). Two primary variables are users' interest in eLearning and their competencies in using digital facilities (Lynch et al., 2005). The learners' preferred-learning path depends on their personal characteristics of age, gender, teacher-led or self-study, familiarity with computer, and learning style (Cagiltay et al., 2006). Likewise, teachers' use of ICTs is influenced by a diversity of factors like: demographics; accessibility; digital literacy, perceived usefulness and ease of use of new system (Nawaz, 2013a).

Furthermore, new generation of students (Net Geners) use media in many different formats, which shows a new learning style as is their multitasking: using computers and the Internet at the same time as video games, print media, music, and phone (Nawaz, 2011). The teachers, students and any other users of ICTs, behave according to their demographic characteristics of age, educational level, cultural background, physical and learning disabilities, experience, personal objectives and attitudes, learning preferences and styles, motivation, reading/writing skills, ability to work with diverse cultures, familiarity with differing instructional methods and previous experience with eLearning (Nawaz, 2012d).

2. CONTEXT OF ELEARNING IN HEIs

The increasing contextual impacts on eLearning are widely identified in the research about the integration of educational technologies (Stephenson, 2006; Hameed, 2007). In traditional computer-enhanced learning, the computer was used as a tool to complete a task or get something done so there was no need to address the

broader environmental context of the individual (Qureshi et al., 2009). In a study of Indian universities, found that "most IT education is ineffective because it is too technical and not at all concerned with local contexts and real world problems (Nawaz & Kundi, 2010c). Another research reveals that despite the best of intentions, efforts and resources, many of the eLearning projects end in failure primarily because they are not undertaken in the perspectives of existing and changing social and political context (Nawaz et al., 2011c).

2.1 Internal Context
In the eLearning projects, consideration must be given to the learning objectives and outcomes, the characteristics of the learners, and the learning context in order to leverage optimum out of the eLearning facilities (Tinio, 2002). About 83 teachers from 29 Australia's universities recorded their perceptions of the factors affecting their teaching work and then categorized internal context into individual and organizational domains, which interact with each other and the university environments (Lynch et al., 2005). Likewise, the use of project management, instructional design, course development and all other academic and administrative techniques are crucial for a successful integration of technology in a broader institutional context (Nawaz & Qureshi, 2010a; Nawaz, 2013a).

2.3.1 User-Characteristics

a. Perceptions about ICTs
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 (Bataineh & Abdel-Rahman, 2006). 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 (Nawaz & Kundi, 2010b). As teachers' attitudes are strongly related to their success in using technology, students' use of computer also depends on the perceived usefulness of these resources in terms of effective communication and access to information (Nawaz, 2011). It is however, notable that very little research has been published about students' perceptions of their computer literacy, especially in third world countries (Nawaz & Kundi, 2011; Qureshi et al., 2013).

b. Approaches/Theories about the Role of ICTs
The diversity of perceptions about the role of ICTs in HEIs is grouped into two broad theories or beliefs of users guiding most of the eLearning projects:

1. **The instrumental approach**: It believes that technology is a 'tool' and possess no inherent value (neutral) and its value lies in how is it used thus, a universal model of learning is possible. Furthermore, since education serves society therefore emphasis should be on the utility and relevance of education. This theory, however, contains the risk of limiting students to their subjects/jobs and restraining them from critical thinking about broader social and communal issues (Nawaz & Kundi, 2010c).

2. **The substantive approach**: It is a determinist theory arguing that technology is not neutral rather has positive or negative implications for the individual, organization, and society. Theory postulates that just existence of technology leads to familiar and standard applications, which in turn brings social change (Nawaz & Qureshi, 2010b). The substantive theory matches the 'liberal theory' of education, which considers learning as an active, interconnected and socially collaborative experience and not merely a recollection of facts and figures (Nawaz & Zubair, 2012b).

c. Learning/Teaching Styles
The new generation of students has different learning styles: some learn fast while others are slow learners and tend to repeat; some prefer working alone while others like working in groups. Fortunately, ICTs allow personalization and customization of technologies according to the individual user styles (Cagiltay et a., 2006). Researchers believe that learning style is a good predictor of an individual's preferred learning behavior. It is an individual's inherited foundation, stemming from the past and depending on the demands of the present to emphasize some learning abilities over others (Nawaz & Kundi, 2011). The instructors cannot accommodate individual styles of each student therefore it is important to provide multiple learning opportunities because a match between learning and teaching style buildup student's satisfaction (Nawaz & Zubair, 2012c).

d. User Types
There can be several users of eLearning facilities offered by the HEIs, however, those who are called 'university-constituents (Juniu, 2005)' include teachers, students and administrators. Other researchers use the nomenclature of 'education-community' and enlist teachers, administrators, district superintendents, legislators, etc. to represent the stakeholders in HEIs, who must be responsible for the development and use of educational technology (Buzhardt & Heitzman-Powell, 2005). So the "campus-constituents (Carey & Gleason (2006)" are the teachers, students and the administrative personnel (Nawaz, 2013a).

a. Teachers

The challenging nature of ePedagogy demands greater preparedness by the teachers by possessing a wider repertoire of teaching techniques (Nawaz & Qureshi, 2010b). An eTeacher is considered as a mentor, coach or facilitator and expected to perform diverse functions in the eLearning environment particularly:

1. *Managerial*: The teacher plans the teaching program, which includes objectives, timetable, rules and procedures, content development and establishment of the practical work and interactive activities.
2. *Intellectual*: This is the traditional teaching function. The teacher should know the syllabus and the particular subject which will inform the learning content.
3. *Social*: This is a fundamental function in eLearning and eTraining that the teacher creates conducive learning environment, interacts with students and examines their feedback. To perform this function, the eTeacher should motivate, facilitate and encourage the students in the new learning environments (Nawaz et al., 2012a).

b. Students

Contemporary eStudents are denoted by several concepts to express their involvement with ICTs: Computer Geeks/Nerds (Thomas & Allen, 2006); Net-Generation, Net Genres, and Net-Savvy students (Barnes et al., 2007); Millennials, and Electronic Natives (Garcia & Qin, 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 - MP3, cell phones, PDAs (Aaron et al., 2004), it is obvious that the Net Generation is different from the previous generations in terms of their technological abilities, teamwork skills, and openness to participatory pedagogies (Garcia & Qin, 2007).

c. Administrators/Staff

The ICTs are proving very successful in fostering logistics, administrative processes, distribution of materials and instructional communication (Valcke, 2004). ICT has more impact on administrative services (e.g. admissions, registration, fee payment, purchasing) than on the pedagogic practices in the classroom (Dalsgaard, 2006). Likewise, ICTs are also facilitating in organizational learning through improved forms of communication and sharing (Laffey & Musser, 2006). It is the administration (or management), which provides the original momentum for eLearning development and use because high-quality digital literacy and teaching requires the administration to provide moral and technical support for faculty (Ezziane, 2007).

2.1.2 Organizational Characteristics

The organizational policies, structures of authority and responsibility, rules of business, and on the top its culture, determines the destiny of any project including eProjects for creating eLearning environments in a HEI. In the background of eLearning development and use practices, "the organizational context of ICT-integration is a major impediment (Sasseville, 2004)." Similarly, the perceptions, development and use of eLearning vary with the change in organizational context (Cawson, 2005).

Within the organizational domain, organizational support provided through allocation of resources and symbolic support reflected in an institution's systems, policies and processes are the critical success and failure factors (Lynch et al., 2005). Research shows that the execution of the digital opportunity initiatives "is closely linked to organizational changes (Nyvang, 2006)" and understanding of the relationships between eLearning and its organizational context are "complex and still incomplete (Ågerfalk et al., 2006)." Therefore, to move the educational practices forward, HEIs need to experiment with new organizational models to accommodate the contemporary digital requirements of the industry, market and society at large by providing state of the art and cutting-edge ICT graduates (Thompson, 2007; Nawaz, 2012a).

2.2 External Context

There is a perceived conflict between the requirements of industry/market for graduates and whatever, is produced by the universities (Hagan, 2003). ICT graduates are required to develop a cache of knowledge and skills (Ekstrom et al,. 2006) however, studies report that the gap between theory and practice is widening and the computing-curricula is failing to reflect the external demands (Andriole, 2006). Furthermore, due to globalization and global-village, governments are facing problems in enabling their education system to transform the societies into 'information and knowledge-communities' (Goddard & Cornford, 2007). Modern organizations require technical talent to fill new digital job-profiles like network managers, web administrators, developers, programmers and security specialists, but universities seem in trouble, for example, although student-enrollments in ICT-related courses are increasing all over the world but the output of IT graduates is still less than the demand (Ezziane, 2007).

2.2.1 Government Policies

Though teachers and students matter in eLearning projects but government agencies control goal -setting, project-management, working conditions, evaluation, and the allocation of resource for eProjects particularly, in public

sector HEIs (Aaron et al., 2004). The governments are establishing committees, constituting taskforces, and dedicating huge amounts of money for the enhancement of computer-based pedagogy (Abrami et al., 2006). Mathur (2006) writes that the growth of a powerful Indian ICT industry is founded on the concerted efforts by the Government. eLearning has clear implications for national, regional and local governments in terms of the need to establish policies and practices that enhance the capability of universities to perform new roles in the digital societies through state-of-the-art eLearning platforms (Goddard & Cornford, 2007).

2.2.2 Broader Social Context

ICT not only brings about changes in the way that we deal with information, it also changes the way we think and how we view our world. Cultural change is brought about by a greater access to information and the fact that this access is provided by new technical means makes it more "scientific". This type of cultural change also creates a form of stress, fuelled by the inability of the individual to be in sync with the speed of cultural transformation; becoming an outcast in the new information society is presented as the ultimate fear (Sasseville, 2004). In education, many factors complicate the process of innovation. Technological, social and pressures from the work world encourage educational institutions to evolve. Not a domain that readily accepts change, education reacts gradually to these external pressures (Zubair et al., 2013).

Our world's culture is no longer only literary and artistic, it is also technologic and scientific. ICT is at the crossroads of these two aspects. Refusing this is condemning yourself to illiteracy and being unable to integrate into today's world (Sasseville, 2004). The integration of ICTs in HEIs demands a re-definition and re-evaluation of their role in education and development of society according to the conditions of changing social context, wherein the communication networks are radically changing and knowledge is becoming the central driving force (Loing, 2005) verifying that "learning cannot be separated from its social context (Ward et al., 2006)." The eTeachers of modern age are constantly forced by media, education-department, professional associations, and parents to update (Zhao & LeAnna-Bryant, 2006). The social grounds for an eProject of eLearning in HEI "cannot be neglected in a serious undertaking (Ågerfalk et al., 2006)."

2.3 Major Contextual Issues

2.3.1 Diversity of Contextual Factors
Context is either a support or a barrier for eLearning project management (Nyvang, 2003; Sasseville, 2004).

There are a number of challenges that face universities in developing countries as they seek to implement the e-learning systems. AAU (2001) asserts that African universities which should be in the forefront of ensuring Africa's participation in the ICT revolution, they are themselves unable and ill-prepared to play such a leadership role. This is because of the information infrastructure of African universities which is poorly developed and inequitably distributed (Sife et al., 2007). In the context of developing countries, the results are almost similar to developed states in many terms as well as different at broader level (Nawaz & Kundi, 2010a).

Despite research and testimony that technology is being used by more faculty, the diffusion of technological innovations for teaching and learning has not been widespread, nor has IT become deeply integrated into the curriculum. In spite of a unanimous agreement on the benefits of instructional technology there were doubts with respect to matching of their own personal teaching style with instructional technology (Mehra & Mital, 2007). Given that eLearning solutions must be compatible with the contextual factors of any country, the measurement and assessment of demographic impacts on user perceptions are critical to the successful digital opportunity initiatives for higher education in a developing country (Nawaz & Kundi, 2010c).

2.3.2 Mindset Problems
The surveys reveal that new age technology teaching is partly intimidating. A large population finds it easier to prepare lectures on transparencies rather than use the computer. In some cases, integrating technology into the teaching-learning transaction has been found to transform the teacher's role from being the traditional "sage on the stage" to also being a "guide on the side", and student roles also change from being passive receivers of content to being more active participants and partners in the learning process (Mehra & Mital, 2007). Researchers are constantly identifying the incompatibility of the eLearning models with the contextual requirements of the countries particularly, in the developing world (Nawaz & Kundi, 2010b; Nawaz, 2013).

Teachers are reluctant to integrate technological innovations into their daily scholarly activities and, at least in Quebec, this situation has not really changed over the past few years (Sasseville, 2004). 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. There is both difference of kind as well as difference of degree between

the conceptions and behavior of users about the nature and role of ICTs in higher education. The research reveals that these differences of attitudes stem from the contextual factors relating to individual, group and organizational characteristics (Nawaz & Kundi, 2010a).

2.3.3 Mismanagement of eLearning Systems

Many exciting applications of information technology in classrooms validate that new technology-based models of teaching and learning have the power to dramatically improve educational outcomes. But, classroom computers that are acquired as panaceas end up as doorstops (Mehra & Mital, 2007). Unless other simultaneous innovations in pedagogy, curriculum, assessment, and school 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 (Nawaz, 2013a).

Technological tools are commonly perceived as tools of performance, a way of doing things better, faster and cheaper. But from the teacher's point of view, academic success cannot be evaluated by sheer performance alone. Their work goes far beyond academic success; they are helping human beings as a whole and a human being cannot be defined solely by performance or by the capacity to get a higher education (Sasseville, 2004). Culture is another highly influential mediator in the present case. The pedagogical model is also part of the culture of the organization. It is thus expected that new tools and a new practice supports problem oriented project pedagogy or at least doesn't contradict it. The most prominent and most difficult challenge is probably the need for a broad ownership of the implementation and its results. Without broad ownership among the potential participants in the implementation they are likely to ignore implementation of ICT or engage in a competing implementation project (Nyvang, 2006).
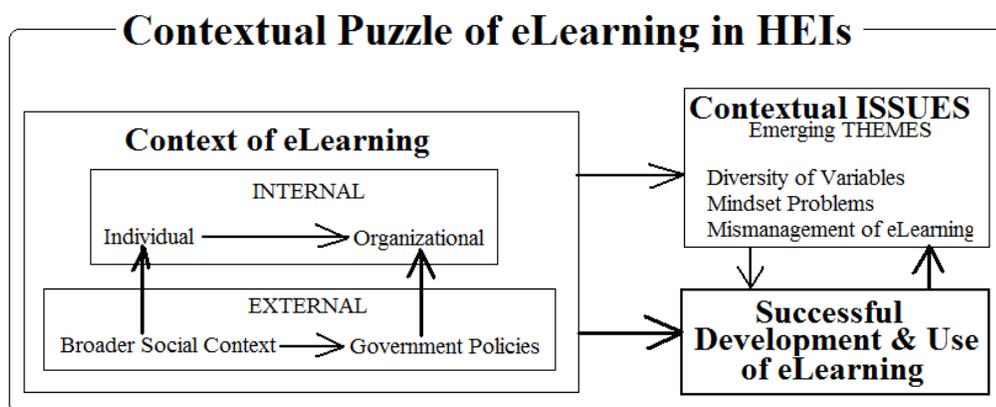

Figure 1 The relationships between context and eLearning Management in HEIs

4. DISCUSSIONS

In a very short time span, technology has become seamlessly integrated into our consciousness so quickly and deeply that we cannot fully absorb the full range of changes that have been brought (Drucker, 2006). The marriage between education and technology has often been rocky (Buzhardt & Heitzman-Powell, 2005). These rapid advances in ICTs demand changes to our education systems (Knight et al., 2006). The expanded use of computers in education continues despite research having failed to accrue definite benefits in learner's performance. The main reason for finding no significant difference between the traditional education system and the system using technology is the instructional methods (Cagiltay et al., 2006). So, the transition from traditional instruction to

online teaching is best accomplished by systematically addressing the needs of faculty (Phillips et al., 2008; Nawaz, 2013b).

Technology can be utilized in education in several ways. This continuum starts from information delivery and ends with cognitive tools. Information delivery means that technology is used primarily to access and deliver information that is categorized and stored into digital format. For example, a library system may be considered as an information delivery system. Cognitive tools refer to adaptive technology or systems that are developed to support and improve the learning process (Sirkemaa, 2001). Supporters claim that the use of information technologies in education will increase communication

among students and teachers, provide access to resources that may otherwise not be available, and encourage 'authentic' learning as students access "real-world" data not provided by textbooks (Aaron et al, 2004).

Many teacher educators and teacher education programs have been experimenting with the use of technology over the years. Despite their efforts, there are still challenges and concerns regarding teacher's ability to integrate technology into teaching and learning activities and their comfort in doing so (Oh & Russell, 2004). However, technology training alone did not necessarily ensure that these teachers would infuse technology into their routine instruction and a radical change in their instructional practices would occur. However, they need to get technical and human resource support for continuous technology integration after the training (Zhao & LeAnna-Bryant, 2006). Much more research is needed regarding teaching orientations, personal traits and the construction of online learning environments (Phillips et al., 2008).

5. CONCLUSIONS

The researchers have explored that the educational cultures can pass through different phases of maturity regarding change, ready to move forward, backward, or maybe not at all. It is now quite evident from the publications that teachers are adapting their practice to the use of information technology but only to a certain extent. They are not willing to put aside or throw away years of precious experience simply to adopt a tool that is generally perceived as ill-fitted to the framework of their craft. Teachers are also refusing the very popular conception of professional merit by technological means. They do not want their competence as educational professionals evaluated merely by their ability to use the technology in the classroom. The patterns of the implementation activity that all actors involved return to over and over again are identification of needs for development with ICT, choice of ICT and development of practice with ICT.

There is no doubt in the fact that 'ICT is not neutral' rather supported by an ideological complexity that represents ideas as diverse as the globalization of the economy, new information society, and the end of national policy in the favor of world government. A number of communities have an interest in and perspectives on the relationship between people and ICTs. These include industry, academia, designers, policy makers and other institutions. Instructors are feeling increasing pressure to use IT, but they commonly face several obstacles when attempting to use technological teaching techniques. Institutions of higher education must strategically develop IT integration plans that help overcome these obstacles, addressing the needs of diverse pedagogical agendas and multiple levels of comfort with technology.

There is need to focus on the bottle necks in the way of successful and context-friendly eLearning systems because barriers can make technology use frustrating for the technologically perceptive, let alone the many teachers who may be somewhat techno-phobic. The digital literacy of teachers is indispensible otherwise one cannot expect teachers to play their due roles in the movement of computer literacy by making their students to so develop their culture and context that their life becomes digitally charged work environments and broader contexts.

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