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Metaphorical interpretation of elearning in higher education institutions

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Abstract

Metaphors are handy tools to view and thus comprehend a situation. The metaphors like 'divide & gap or access', 'equality' and 'bridge' are used to visually portray current conditions of eLearning, identify its problems and then suggest solutions to resolve those issues which hinder in successful application of eLearning tools in higher education institutions (HEIs). These metaphors are the theories about the situation therefore none of them is either right or wrong instead different views of reality containing some undeniable and other questionable notions about different aspects of eLearning in higher education institutions. Accommodating all of these views, this paper suggests an alternative framework based on 'Gateway-Metaphor' to portray the contemporary eLearning environments, particularly in developing countries. The gateway metaphor defines the eLearning, pinpoints its problems, and then proposes a model of taking advantage of all the existing metaphors into a new configuration for successful eLearning theory and practices.

Keywords: ICTs, elearning, metaphor, access, equality, digital-divide, bridge, gateway, eteaching

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1. INTRODUCTION

In the modern information societies, the knowledge transfer should be simulated through analogies, metaphors and questions or students will fail to engage in reflective thinking and metacognition (Young, 2003). Information and communication technologies (ICTs) are viewed, in this context, as a powerful tool for change, it is not only responsible for social change, it is also attributed

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powers beyond any other technology in the past (Uzunboylu & Ozdamli, 2011). The use of metaphors to describe ICT demonstrates this perception. "ICT is the new pencil of our society" (Sasseville, 2004). In designing the computer interfaces, developers are supposed to incorporate the culturally relevant interface metaphors in desk top icons (Macleod, 2005). A metaphor is the use of a name, descriptive term or phrase to represent a person, object, or action to which it is not literally applied, for example, scientific view of organizations as 'machine' (Nawaz et al., 2007).

The interactions between the teacher and learner are required to guide learning, providing an authentic representation of the perceptions, strategies and interpretations of the learner. Through this interaction, new ideas or cultural tools can be introduced for the cognitive development and self-regulation of their knowledge growth (Young, 2003). The developers and users of eLearning systems are expected to be the experts in metaphoric thinking and the ability to create mental models, concept maps, and other forms of abstract representation of the new system to overcome problems of disorientation in the development process (Aviram & Eshet-Alkalai, 2006). The purpose of a metaphor is to steer us to think about something in a particular way (Nawaz et al., 2007).

Innovation is also a metaphor used to represent 'eLearning' however, it has not been explored yet (Baumeister, 2006). Organizations are complex and paradoxical phenomena that can be understood in many different ways (Nawaz et al., 2007). To effectively deliver the instruction, on the other hand, cognitive approaches provide various instructional methods, such as the use of advance organizers, mnemonic devices, metaphors, and learners' schemas as an organized knowledge structure (Nam & Smith-Jackson, 2007). Given the premise that eLearning development is a learning process, it requires an open environment wherein all the participants have the opportunity to make sense of the new technological work environment (Qureshi et al., 2009).

2. EXISTING METAPHORS OF E-LEARNING

Since the very inception of digital applications in higher education institutions (HEIs), different metaphorical interpretations have been used to explain the phenomena of eLearning. Since eLearning has passed through an evolution process of starting from 'traditional-eLearning' through 'Blended-learning' to the modern 'Virtual-learning' (Tinio, 2002) therefore, the metaphors used for this purpose also need replacements, modifications or reformations of eLearning-metaphors to accommodate new technologies, new pedagogy, new learning styles and advanced learning trends. The literature reports the common use of three distinct metaphors to discuss eLearning in HEIs including 'Access or divide and gap', 'Equality or level playing field' and 'bridge' metaphors (Young, 2003; Seale, 2006; Aviram & Eshet-Alkalai, 2006; Nawaz et al., 2007; Girgin, Kurt & Odabasi, 2011; Tuncay & Uzunboylu, 2011; Farajollahi & Moenikia, 2011; Ozdamli, 2011).

2.1 ACCESS Metaphor

The concept of 'Access' is frequently used to talk about the role of ICTs in education. The premise is that for effective eLearning systems, all the users must be provided easy access to the information technologies and resources for learning and communication (Sasseville, 2004). Furthermore, the access should not be defined only as 'hardware-access' rather it should extend to the knowledge-bases around the world and available on the information superhighway – the Internet (Klamma et al., 2007). However, in practice, the researchers report that time constraint and insufficient access to technology such as computer and the Internet were confirmed to be the two impediments to eTeaching as perceived by the teachers (Koo, 2008).

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). 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). However, without proper support and maintenance of even the most current and sophisticated hardware and software, the ability of teachers and students to access and use technology is severely compromised (Valdez et al., 2004).

2.2 EQUALITY Metaphor

Amongst the recent pressing issues relating to the phenomenon of globalization is an overwhelming call to arms to address poverty and inequality in developing countries by facilitating the global diffusion of Information Communication Technologies (ICTs). ICTs are seen as the electricity of the informational age and access to them as all important to the process of development (Macleod, 2005). The 'equality' or 'level playing field' metaphor views the eLearning as the provision of digital opportunities to all the users irrespective of their position in the society (Seale, 2006).

There is no doubt that in statistical terms inequality in access to ICTs does exist between developed and developing nations. Most frequently the statistical disparities between countries regarding ICT are based on measures of access to hardware and connectivity and the figures present a picture of developed world dominance in ICT access (Macleod, 2005). Digital divide is the uneven diffusion of technology and inequality in access to technologies with significant social, economic and political consequences. These may exist between rich and poor countries, rural and urban areas, men and women, skilled and unskilled citizens and large and small enterprises. There are many reasons for the creation of these divides but this is certain if these are not taken care of immediately, the situation for some will keep on worsening till the economies collapse (Hameed, 2007).

Although the digital era has bridged some of the gap between those who have access and skills to use technology and those who are just spectators of a digital world, it has also accentuated these differences and created unequal distribution and access to technological knowledge. For example, the use of sophisticated technologies brings the need to rely on IT department technological expertise, creating an uneven relationship (Juniu, 2005). "If you look at the opportunities and the threats which exist in the context of globalization, information technology can become a tool of either decreasing the inequalities that already exist in the world or increasing it". Hameed, Tahir (2007)

2.3 BRIDGE Metaphor

Today is a world of many divides, one of the most typical being the Digital Divide which in itself has given birth to or is worsening other economic and social divides. In this world more suffer and less are able to benefit from technology. There is need of international cooperation for use & promotion of Information and Communication Technologies for Development (ICT4D) to bridge the digital divides within countries, regions and the world (Hameed, 2007). Certainly, a need to get everyone talking to each other—academic computing staff, faculty, and administrators—is the first crucial step in the development of new models that bridge this divide (Kopyc, 2007). The leveraging of ICT to support higher education reform and the development of a research culture in Pakistani universities is essential. By helping to bridge the digital divide between institutions in Pakistan and the developed world, and providing our research community with the tools and skills to maximize the potential of ICT as a mechanism for economic development, the HEC aims to assist our nation in achieving sustainable economic growth and future prosperity for all our citizens (HEC, 2009).

The bridge metaphor has been used by several researchers and practitioners to conceptualize the relationship between users, developers and technologies and how that relationship can be mediated or bridged. In examining the relationship between developers and technologies, design approaches need to change and develop in order to bridge the gap between accessibility and design (Seale, 2006). DOI, on the other hand, are the efforts to bridge the digital divide (Hameed, 2007). The Higher Education Commission, Pakistan has initiated a project titled "Online Lecturing and Net-Meeting using IP-based Video Conferencing System" for provisioning of Video Conferencing facility at all public sector universities and establishment of world class video conferencing lecture room to bridge the gap of good faculty (HEC, 2009).

Traditionally, the assumption was that reading, watching videos or controlling a button on these easy to deliver, flashy page-turners constituted 'active learning'. These models rarely bridged the gap between theory and practice (Young, 2003). Clouding the issue of defining the digital divide is that it is not just a gap that exists between developed and developing nations, but also within nations and thus also creating inequality for marginalized communities within developed nations. Digital divide as: the relative differential in access to information and communications technologies (ICTs) between and within regional groupings (Macleod, 2005). Given this, we need to better understand the bridges from 'theory' to 'practice' (Andriole, 2006). The bridge metaphor is useful in

that it addresses how the problem can be solved (by bridging the divide) but it does not suggest who should be involved in bridging the divide or who has the power or responsibility to build the bridge (Seale, 2006).

3. THE GATEWAY METAPHOR (HYPOTHESIS)

In order to improve our understanding of 'digital literacy' and provide professionals, designers of digital environments, and educators with better guidelines for design and development of eLearning in higher education, there is a need for a refined framework for the concept that is as exhaustive, coherent, and parsimonious as possible (Aviram & Eshet-Alkalai, 2006). There are two main reasons for the current lack of knowledge about making eLearning accessible.

The research and practice literature has predominantly recorded arguments about why eLearning should be made accessible and failed to record how practitioners interpret and implement accessibility legislation, guidelines, standards and tools in order to develop accessible eLearning systems.

The practitioner community within higher education has not developed its own conceptualizations of what the best practice is and which factors are more critical in this regard (Seale, 2006).

The gateway metaphor does not refer only to the provision of hardware/software access to the users but also emphasizes on the consideration of demographic diversities among the users, which hinder in their way to access the digital resources. The digital divide within communities and individuals is indicative of the differences in the user-attributes or demographic characteristics (Nawaz et al., 2007; Nawaz & Kundi, 2010b).

3.1 Theoretical Underpinnings

The contemporary computer technologies are altogether different from those introduced in eighties when first PC was introduced. Today the dominant role is not played by the computer rather networking or telecommunications. Technical innovations and departures from old to new technologies have also pushed teachers and educationists to gradually introduce paradigm shifts in the current pedagogy thereby moving away from objectivism and social constructivism.

Paradigm shifts, collaborative technologies and FOSS movement.

3.1.1. Paradigm Shifts in eLearning

The world is moving away from 'instrumental' to 'substantive' uses of educational technologies thereby changing the whole scenario in terms of what technologies can do and how teachers,

students and education administrators can use them for their respective purposes. Resultantly, the users have to work differently and depend on the technical infrastructure, support services and attitude of other users (Jager & Lokman, 1999). In new eLearning environments, the roles are blurring within the university system, thereby demanding greater cooperation among academics, as well as between academic and nonacademic staff in the university cultures to foster collaborative environments and design the management policies for the benefit of both academic and administrative staff. The enterprise and flexibility are the key values needed for universities to succeed in the rapidly changing culture of information societies (UQA, 2001).

Traditionally generic skills have involved such capabilities as ability to reason formally, to solve problems, to communicate effectively, to be able to negotiate outcomes, to manage time, project management, and collaboration and teamwork skills. The growing use of ICTs as tools of everyday life has seen the pool of generic skills expanded in recent years to include information literacy and it is highly probable that future developments and technology applications will see this set of skills growing even more (Oliver, 2002). On the vital subject of pedagogy it was encouraging to find that some of the projects have moved beyond behaviorist forms of design towards a constructivist or collaborative pedagogical approach (Gray et al., 2003).

Educators need to recognize the need to constantly update skills and knowledge, not only of their students but their own skills as well. These ICTs have the potential to significantly influence teaching practice, students' learning and engagement in the learning process (Knight et al., 2006). It is argued that group learning is more than simply the multiplication of individual learning processes: the character of group processes becomes more complex as they acquire a social context (Bondarouk, 2006). Universities encourage faculties to combine the traditional lecture format with techniques that prompt active interaction with students (Barnes et al., 2007).

3.1.2. Collaboration of University-Constituents

Individuals can achieve far more by working collaboratively in groups rather than on their own. The learning process is not merely an active process but rather a reflective one; the practical experiences combined with exchange of ideas and collective reflections create deeper understanding and generate new knowledge (Drinkwater et al., 2004). The time is right for collaborative action because the time is wrong for any approach other than cost-sensitive, resource-smart deployments (Klonoski, 2005). It is necessary to move e-learning beyond learning management systems and engage students in an active use of the web as a resource for their self-governed, problem-based and collaborative activities (Dalsgaard, 2006). Teachers should identify needs, plan, implement, and assess classroom instruction through the collaborative use of technology and other resources (Willis, 2006).

The guidelines for successful electronic teaching and learning, which can prevent new instructors from reinventing the wheel and influence the character of e-courses in the future include: Teach collaboratively, Create spaces for student collaboration and peer review, and build community (Kuriloff, 2005). "Collaborative learning" is trying to solve this situation by creating a virtual social

space for the teaching and learning needs of the particular group of people inhabiting that space (Dinevski & Kokol, 2005). Courseware helps librarians to manage collaborative linkages with instructors and allows instructors to connect their courses to the valuable resources available in the library. In the absence of collaboration, instructors may simply allow their courseware sites to become information silos—separate storehouses of information—instead of drawing upon the full spectrum of both library resources and free Internet resources (Shank & Bell, 2006).

In working in collaboration with others, the teacher loses a part of his autonomy and therefore, he is forced to collaborate with his colleagues in a way that is entirely different from that he was used to (Jager & Lokman, 1999). By compelling instructors to collaborate with people outside the classroom (government agencies, university administrators, technical support staff etc), technology can be perceived as a threat to the private practice of pedagogy (Aaron et al., 2004). Collaborative learning is trying to solve this situation by creating a virtual social space for the teaching and learning needs of the particular group of people inhabiting that space. Personalization of the eLearning services is going to play an important role in the friendliness and intimacy experience of the participants. The technology providers will be forced to offer both highly sophisticated and at the same time "simple to use" eLearning functionalities. One of the major solutions to combine these two directions is the personalization of the e-learning technology platform (Dinevski & Kokol, 2005).

3.1.3. FOSS Movement

The catalyst for change is the human will. It simply won't be denied. The confluence of technology and our natural tendency toward freedom and empowerment will press against and eventually flow around and over the physical boundaries of our institutions (Shimabukuro, 2005). There once was a time when open source software was the sole province of the geek and existed behind barricades impassable by ordinary computer users. The major barriers were inscrutable jargon; most open source programs, such as Web servers and mail servers, were limited primarily to applications and utilities that were useful to servers and network administrators; such resources went beyond the needs of the average desktop computer user. Recent developments, however, are bringing open source into the lives of average desktop computer users. In addition to their availability for open source operating systems like Linux, many open source applications are also available for proprietary operating systems like Windows and Mac OS X. For example, in place of Microsoft Office, users can run Open Office, an MS Office-compatible open source replacement. One alternative to Microsoft's Internet Explorer is Firefox, an open source Web browser with all the features of its commercial counterpart (Wiley, 2006)

Free/Open Source Software (FOSS) has transformed the software industry. As noted by other authors in this issue, academic information technology (IT) is already realizing many benefits by adopting open software; such benefits include reduced cost, absence of user restrictions and vendor lock-in, and consistency with traditional academic values of openness and sharing. The greatest benefit of the FOSS movement for educators, however, is not cheaper or better software but the model it provides of a social, cultural, and legal framework capable of harnessing IT to improve

learning (Stephenson, 2006). However, in the absence of collaboration, instructors may simply allow their courseware sites to become information silos—separate storehouses of information—instead of drawing upon the full spectrum of both library resources and free Internet resources (Shank & Bell, 2006).

Contrary to the expectations of many educators, e-learning offers significant opportunities to create learning communities without face-to-face interaction. For some students, in fact, the absence of face-to-face encounters empowers them to interact more openly with their peers and their instructors than they would feel free to do in a traditional classroom setting (Kuriloff, 2005). But formal education has used IT principally to support administration and research and has been slow to adapt it to improve its core business of teaching and learning. Traditional learning is still too passive, too parochial, too hierarchical, and too artificial. By harnessing IT effectively, educators can make instruction more graphic, dynamic, and active than it is now. They can introduce students to real-world experts and real-world problems and create communities of practice that promote learning. Others may object that a huge amount of online content is already available at no charge, so open source learning is old news. But price is the least important issue in open source learning, as a review of the factors critical to the success of FOSS will make clear (Stephenson, 2006).

3.2 The Dynamics of Gateway Metaphor

3.2.1. Socio-Technical Infrastructure for Access

As we know that it is not the provision of computers only which creates an eLearning environment rather 'Networking' lies at the core of modern digital learning systems. Everything happens through computers BUT on networks. 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. 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 (Qureshi et al., 2009).

Furthermore, while developing and/or updating, 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 that "go with tried and tested systems (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)." 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).

3.2.2. *eTraining for the Digital Literacy of eUsers*

Both instrumental and substantive views of eLearning emphasize the role of eLearning-users (Young, 2003). Instrumentalists contend that technology is neutral and therefore its impacts and benefits entirely depend on how they are harnessed and used for individual, organizational, national, and international purposes (Macleod, 2005). While substantive theorists go beyond this and accentuate that instrumental view of ICTs is an underestimation of the potential of these technologies. They can be used more intellectually and intuitively to cast deeper impacts on the society by providing maximum possible services to the human kind (Ezer, 2006). Thus, they overstress the concept of use to represent 'not the tools' rather 'technologies' in terms of modeling and applications of ICTs in eLearning structures and operations. However, use of either instrumental or substantive applications of ICTs in the learning environments squarely depends on the quality of "eTraining (Blázquez & Díaz, 2006)" given to the teachers, students, and administrators.

Thus, it is arguable that the success of technology infusion in education depends on the training of teachers because it is the teachers who are going to prepare students as well as administrators (Oh & French, 2004). The adoption of ICTs is a lifelong learning process however, for immediate uses particularly in organizations like universities, the users are supposed to quickly learn to use the new technologies. So, training is a narrow term than education that aims at preparing a learner for a particular job, function, or profession. Education refers to a long term learning process with high level objectives of developing moral, cultural, social and intellectual dimensions of an individual and society (Drinkwater et al., 2004). Furthermore, lack of technology integration among teachers in classrooms is considered as a major concern of education in the background of technology-driven, information based, global society (Gray et al., 2003; Zhao & Bryant, 2006).

3.2.2.1. *Teachers-Training*

As said above, teacher-training determines the success and failure of eLearning in HEIs (Oh & French, 2004). The knowledge is becoming a central economic driving force, with the shift from the concept of 'information society' to that of 'knowledge societies' demanding a reevaluation of the existing traditional educational processes, role of the teachers and nature of eTraining in the light of emerging ICTs (Loing, 2005) because, students' digital literacy substantially depends on a computer literate faculty (Johnson et al., 2006).

The concerns about eLearning practices in HEIs include debates over the best means of integrating technology into teacher-training and preparing them to replicate the same in the classrooms (Oh & French (2004). 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 its technology into curriculum (Zhao & Bryant, 2006). Recent studies on educational technology confirm the necessity of educating teacher candidates in technology-integration into the curriculum as well as the inadequacy of existing education programs serve this purpose effectively (Willis, 2006). Teachers must keep fully abreast of the new perspectives on learning theories in general and particularly in their area of specialization (Haddad & Jurich, 2006).

It should however, be remembered that merely technology training cannot ensure the technology integration into the routine instruction and a radical change in the instructional practices, unless they get consistent technical and human resource support beyond training (Zhao & Bryant, 2006). After initial training, there should be encouragement for exploration and experimentation for the teachers so that they can find new ways of using computer in their specific functions (Johnson et al., 2006). Thus, effective infusion of technology into higher education calls for such training models and processes which guide the trainees beyond the basic computer skills to effectively embed technology into courses and curriculum (Zhao & Bryant, 2006).

3.2.2.2. Students' Training

As far as the students' training is concerned, there are two types of student-users: Computer and Non-Computer (CNC). For the students of ICTs, it is the computing curriculum (see Section 2.1.5 for detail on computing-curricula) which matters in the quality students training for the use of new technologies. Depending on the instrumental or substantive/liberal models of eLearning, the computing curricula are developed. As discussed before, the computing curricula in the advanced countries is more substantive and liberal than the one used in less developed countries, which is more instrumental and emphasizes the supplemental uses of technology (Ezer, 2006).

Similarly, the students with no computer-background, like those from natural sciences and social sciences need training not at the level of computer-students but to their own level of need for computer applications. This training is mostly conducted by the computer-personnel. However, research shows that such trainers fall short of educating the students in how to use computers in a particular field of study except the general uses of ICTs. Researchers have however, suggested to use non-computer training personnel for the purpose of preparing non-computer students not from computer-point of view rather from the pragmatic use of computers in the real world (Gray et al., 2003; Blázquez & Díaz, 2006).

3.2.2.3. Training of the Administrators

Both the decision-making and implementation staff has to understand ICTs. Decision makers' knowledge of computers and related technologies definitely helps in making reality based decisions. Otherwise, the gap between the user perceptions begins widening (Afghan, 2000). In most of the universities, administrators and administrative staff is given training in the use of computers in their administrative functions. Most of this training is about the office automation tools like the use of word-processors, number-manipulation software, and database management and particularly, the managers are trained in the development and use of presentation software like PowerPoint (Marcella & Knox 2004).

In the advanced countries, administrative staff is also trained in using EMIS, EDSS, LMS, CMS, and other eLearning software (UNESCO, 2006). However, in developing countries, there is still need to train administrators in the basic and preliminary use of computer in automating the routine functions of an administrative office in an educational institution (Mehra & Mital, 2007). Most of the administrative staff learns computers informally through colleagues, friends and self-training. However, several short training programs are introduced both by higher education commission as

well as HEIs themselves to train the administrators and administrative staff (HEC, 2009). Administrative staff handles data about the university resources, operations, results, projects and correspondence with the external institutions. The databases contain data about student-enrollments, exams-schedules, results; teacher-profiles, service records; and different resources of the departments, faculties, hostels and other assets (Wikipedia, 2009).

3.2.2.4. Sustained Technical Support

It is widely argued that “eLearning offers a complete information technology support (Dinevski & Kokol, 2005)” in teaching and learning. Similarly, as explained across the thesis, 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).

Gray et al., (2003) report, after studying a group of universities running successful eLearning projects that successful eLearning meant that they were receiving sustained technical support from their IT divisions/department and ICT-professionals. Similarly, researchers suggest that after training, what matters for eLearning users is the required and timely technical-support for continuous technology integration into education (Zhao & Bryant, 2006). This support includes the technical-infrastructure manned with technical talent such as network managers, web administrators, security specialists etc., but universities are reportedly confronting challenges in getting their ICT-workforce ready for digital workplaces for teaching and learning (Ezziane, 2007).

3.3 Theoretical Model of the Gateway Metaphor

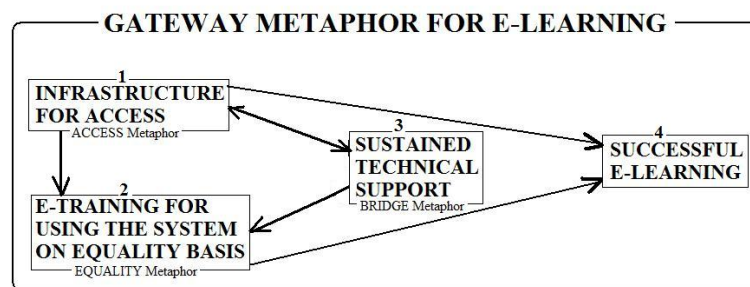


Figure 1 Showing the Schematic Diagram of the Theoretical Model

Figure 1 gives the theoretical model of the ‘Gateway-Metaphor’ by portraying a schematic diagram of the theory behind this simulation. The model shows that all the existing metaphors are

more specific to a particular dimension of the whole story of successfully using eLearning systems in the environment of higher education.

1. The 'Access' metaphor covers the availability of digital infrastructure (computers, networks, telecommunications etc.) however, Gateway metaphor adds the sub-dimensions of social infrastructure based on the user-needs analysis covering technical, social and personal requirements. Thus the infrastructure is 'Socio-Technical.'

2. Equality metaphor tells that all the users must be properly trained to equally use the available resources. eLearning is not something purchased and consumed rather a great deal of training and practice is required to become effective user. Thus, ensuring equally powerful training substantiates the equality metaphor.

3. Availability of infrastructure and well-managed training becomes less effective if user-problems are not addressed while using the new systems. Here come the so called IT-department or sustained technical support to keep eLearning systems working by handling the recurring technical issues (like, software and hardware problems beyond the control of users). The quality of service by technical staff is the 'Bridge' between the users (as well as infrastructure) and successful eLearning practices.

4. Variable 1 and 3 are interdependent; variable 2 depends on 1 and 3; variable 1 and 2 determine variable 4 while variable 3 determines variable 4 but indirectly. Thus, using all the existing metaphors we can construct a better model to view the eLearning development and use practices in their true perspective thereby getting more powerful in harnessing new ICTs and ETS in the favor of higher education and its constituents including teachers, students and administrators.

4. DISCUSSIONS

A metaphor has to be comprehensive in terms of covering all the critical aspects of the phenomenon under study. Gateway metaphor reflects an entry into a world of digital opportunities where efforts have to be made for the provision of all necessary social, human and technical requirements as well as sustained technical support so that every user has the same chances of ascertaining benefits and services from the eLearning system. The above model (figure 1) is a tool to understand the account of reaching successful eLearning systems in terms of its components and their relationship with each other.

For developing countries ICTs have the potential for increasing access and thus represent a potentially equalizing strategy for developing countries. One of the greatest hardships endured by the poor, and by many others, who live in the poorest countries, is their sense of isolation. The new communication technologies promise to reduce that sense of isolation and to open access to knowledge in ways unimaginable not long ago (Tinio, 2002). One of the big expectations tied to eLearning speaks about its ability to introduce equal education to everyone. The biggest optimists

have a vision of top-ranking universities acting over the Internet using ready-made courses for huge amounts of students in Third-World countries (Hvorecký et al., 2005).

Teachers are pushed to adopt technology by media, government, educational institutions, professional associations, parents and society at large, but it can be counterproductive therefore, there is need to understand the teacher perceptions of ICTs and their integration into pedagogy and thereby develop training programs accordingly (Zhao & Bryant, 2006). Researchers have found that most of the educators prefer informal learning-methods than the formal courses of eTraining (Davey & Tatnall, 2007).

Investments in infrastructure and increased access to technology did not lead to increased integration, rather there is need to understand user needs and address them, for example, despite the introduction of eLearning tools, most of the teachers are 'occasional or non-users' of classroom technology because they are given less time to learn and adopt new tools (Cagiltay et al., 2006). Likewise, the contextual and demographic implications for user perceptions and attitudes are widely reported as critical factors to determine the nature of decisions to plan and implement eLearning solutions in higher education. Research is frequently showing that incompatibility of existing eLearning models with the context of specific countries; particularly in the developing world are causing problems and failures (Nawaz et al., 2007; Nawaz & Kundi, 2010b)."

5. CONCLUSIONS

Metaphors are the best ways to develop such a view of the phenomenon that is already very familiar to the users in terms of its meaning and role. For example, 'Access' means approaching something for use; 'Equality' refers to parallel availability of digital resources to every user and 'Bridge' metaphor is the consistent support to the users for effectively using digital options while 'Gateway' metaphor hints to the opening of all the interfaces for users to equally access and get continuous support in applying ICTs for teaching, learning and educational administration.

All these metaphors are the efforts to help understand eLearning theories and practices in higher education. These are the tools to classify different dimensions of an eLearning project and thereby work on each part separately for effective performance. Every metaphor emphasizes a particular problem area as well. There are problems of access, equality for users and uninterrupted technical support from the IT-department. These problems have to be taken up in their respective domain and resolved in the background of their special contexts. The problems of user training are different from the issues of providing equal access to every type of user in a higher education institution. Gateway metaphor accentuates that all the users (teachers, students and administrators) must be provided with keys or user names and passwords to enter the gateway of digital facilities and services (eLearning) wherein socio-technical infrastructure, equal opportunities for digital literacy and standby technical support are already in place.

REFERENCES

- Aaron, M., Dicks, D., Ives, C. & Montgomery, B. (2004). Planning for Integrating Teaching Technologies. *Canadian Journal of Learning and Technology*, 30(2), Spring. Retrieved May 14, 2007, from <http://www.cjlt.ca/>
- Afghan, N. (2000). Human resources development in Pakistan. *Pakistan Economist*. Retrieved April 14, 2007, from <http://pakistaneconomist.com/issue2000/issue36/i8e3.htm>
- Andriole, S. J. (2006). Business Technology Education in the Early 21st Century: The Ongoing Quest for Relevance. *Journal of Information Technology Education*, 5. Retrieved July 14, 2007, from <http://jite.org/documents/Vol5/>
- Aviram, A. & Eshet-Alkalai, Y. (2006). Towards a Theory of Digital Literacy: Three Scenarios for the Next Steps. *European Journal of Open, Distance and E-Learning*, Retrieved May 11, 2007, from <http://www.eurodl.org/>
- Barnes, K., Marateo, R. C., & Ferris, S. P. (2007). Teaching and Learning with the Net Generation. *Innovate Journal of Online Education*, 3(4). Retrieved April 10, 2007, from <http://innovateonline.info>
- Baumeister, H. (2006). Networked Learning in the Knowledge Economy - A Systemic Challenge for Universities. *European Journal of Open, Distance and E-Learning*. Retrieved April 10, 2007, from <http://www.eurodl.org/>
- Bondarouk, T. V. (2006). Action-oriented group learning in the implementation of information technologies: results from three case studies. *European Journal of Information Systems*, 15, 42–53. Retrieved April 10, 2007, from <http://www.palgrave-journals.com/ejis/>
- Dalsgaard, C. (2006). Social software: E-learning beyond learning management systems. *European Journal of Open, Distance and E-Learning*. Retrieved April 10, 2007, from <http://www.eurodl.org/>
- Davey, B. & Tatnall, A. (2007). The Lifelong Learning Iceberg of Information Systems Academics – A Study of On-Going Formal and Informal Learning by Academics. *Journal of Information Technology Education*, 6. Retrieved July 14, 2007, from <http://jite.org/documents/Vol6/>
- Dinevski, D. & Kokol, D. P. (2005). ICT and Lifelong Learning. *European Journal of Open, Distance and E-Learning*. Retrieved April 10, 2007, from <http://www.eurodl.org/>
- Drinkwater, P. M., Adeline, C. M., French, S., Papamichail, K. N. & Rickards, T. (2004). Adopting a Web-Based Collaborative Tool to Support The Manchester Method Approach to Learning. *Electronic Journal on e-Learning*, 2(1), 61-68. Retrieved April 19, 2007 from <http://www.ejel.org/volume-2/vol2-issue1/issue1-art23-drinkwater.pdfEzer>, 2006).
- Ezziane, Z. (2007) Information Technology Literacy: Implications on Teaching and Learning. *Journal of Educational Technology & Society*, 10 (3), 175-191. Retrieved April 10, 2007, from <http://www.ask4research.info/>
- Farajollahi, M., & Moenikia, M. (2011). The effect of computer-based learning on distance learners self regulated learning strategies. *World Journal on Educational Technology*, 3(1), 28-38.
- Girgin, U., Kurt, A., & Odabasi, F. (2011). Technology integration issues in a special education school in Turkey. *Cypriot Journal of Educational Sciences*, 6(1), 13-21.
- Gray, D. E., Ryan, M. & Coulon, A. (2003). The Training of Teachers and Trainers: Innovative Practices, Skills and Competencies in the use of eLearning. *European Journal of Open, Distance and E-Learning*. Retrieved April 10, 2007, from <http://www.eurodl.org/>

- Haddad, W. D. & Jurich, S. (2006). ICT for education: Potential and potency. UNESCO. Retrieved July 14, 2007, from http://web2.iastate.edu/~ilet/reading_groups/Pdf_files/03UNESCO.pdf
- Hameed, T. (2007). ICT as an enabler of socio-economic development. Retrieved June, 24 2007, from <http://www.itu.int/osg/spu/digitalbridges/materials/hameed-paper.pdf>
- Jager, A. K. & Lokman, A. H. (1999). Impacts of ICT in education. The role of the teacher and teacher training. European Conference on Educational Research, Lahti, Finland 22 - 25 September. Stoas Research, Wageningen.
- Johnson, D. W., Bartholomew, K. W. & Miller, D. (2006). Improving Computer Literacy of Business Management Majors: A Case Study. *Journal of Information Technology Education*, 5. Retrieved July 14, 2007, from <http://jite.org/documents/Vol5/>
- Juniu, S. (2005). Digital Democracy in Higher Education Bridging the Digital Divide. *Innovate Journal of Online Education*, 2(1), October/November. Retrieved April 10, 2007, from <http://Innovateonline.info>
- Klamma, R., Chatti, M. A., Duval, E., Hummel, H., Hvannberg, E. H., Kravcik, M., Law, E., Naeve, A., & Scott, P. (2007). Social Software for Life-long Learning. *Journal of Educational Technology & Society*, 10 (3), 72-83. Retrieved June 24, 2007, from <http://www.ask4research.info/>
- Klonoski, E. (2005). Cost-Saving Collaboration: Purchasing and Deploying a Statewide Learning Management System. *Innovate Journal of Online Education*, 1(4), April/May. Retrieved April 10, 2007, from <http://Innovateonline.info>
- Knight, C., Knight, B. A. & Teghe, D. (2006). Releasing the pedagogical power of information and communication technology for learners: A case study. *International Journal of Education and Development using ICT*, 2(2). Retrieved May 11, 2007, from <http://ijedict.dec.uwi.edu/>
- Koo, A. C. (2008). Factors affecting teachers' perceived readiness for online collaborative learning: A case study in Malaysia. *Journal of Educational Technology & Society*, 11 (1), 266-278. Retrieved November 10, 2008, from <http://www.ask4research.info/>
- Kopyc, S. (2007). Enhancing Teaching with Technology: Are We There Yet? *Innovate Journal of Online Education*. December 2006/January 2007, 3(2). Retrieved April 10, 2007, from <http://Innovateonline.info>
- Kuriloff, P. (2005). Breaking the Barriers of Time and Space More Effective Teaching Using e-Pedagogy. *Innovate Journal of Online Education*, 2(1), Oct/Nov. Retrieved April 10, 2007, from <http://Innovateonline.info>
- Loing, B. (2005). ICT and Higher Education. General delegate of ICDE at UNESCO. 9th UNESCO/NGO Collective Consultation on Higher Education (6-8 April 2005). Retrieved June 24, 2007, from <http://ong-comite-liaison.unesco.org/ongpho/acti/3/11/rendu/20/pdfen.pdf>
- Macleod, H. (2005). What role can educational multimedia play in narrowing the digital divide? *International Journal of Education and Development using ICT*, 1(4). Retrieved May 11, 2007, from <http://ijedict.dec.uwi.edu/>
- Marcella, R. & Knox, K. (2004). Systems for the management of information in a university context: An investigation of user need. *Information Research*, 9(2), Paper 172. Retrieved April 10, 2007, from <http://InformationR.net/ir/9-2/paper172.html>
- Mehra, P. & Mital, M. (2007). Integrating technology into the teaching-learning transaction: Pedagogical and technological perceptions of management faculty. *International Journal of Education and Development using ICT*, 3(1). Retrieved October 11, 2007, from <http://ijedict.dec.uwi.edu/>
- Nam, C. S. & Smith-Jackson, T. L. (2007). Web-Based Learning Environment: A Theory-Based Design Process for Development and Evaluation. *Journal of Information Technology Education*, 6. Retrieved October 9, 2007 from <http://jite.org/documents/Vol6/>

- Nawaz, A. & G M Kundi (2010a) Demographic implications for the eLearning user perceptions in HEIs of NWFP, Pakistan. *Electronic Journal of Information Systems for Developing Countries*, 41(5), 1-17.
- Nawaz, A. & Kundi, G. M. (2010b) Demographic implications for the user-perceptions of e-learning in higher education institutions of N-W.F.P, PAKISTAN. *The Electronic Journal on Information Systems in Developing Countries (EJISDC)* 41(5), 1-17.
- Nawaz, A., Kundi, G. M. & Shah, D. B. (2007). Metaphorical interpretations of information systems failure. *Peshawar University Teachers' Association Journal*. 14, 15-26.
- Oh, Eunjo & French, Russell (2004). Pre-service Teachers' Perceptions of an Introductory Instructional Technology Course. *Electronic Journal for the Integration of Technology in Education*, 3(1). Retrieved April 10, 2007, from <http://ejite.isu.edu/Volume3No1/>
- Oliver, R. (2002). The role of ICT in higher education for the 21st century: ICT as a change agent for education. Retrieved April 14, 2007 from <http://elrond.scam.ecu.edu.au/oliver/2002/he21.pdf>
- Ozdamli, F. (2011). Mobile learning perception and competence of teachers and learners according to the geographical areas in North Cyprus. *International Journal of Learning and Teaching*, 3 (2) 35-46.
- Qureshi, Q.A., Ahmad, S., Najibullah., Nawaz, A., & Shah, B. (2009) eLearning development in HEIs: Uncomfortable and comfortable zones for developing countries. *Gomal University Journal of Research*, 25(2), 47-56. (GUJR)
- Seale, Jane K. (2006). The rainbow bridge metaphor as a tool for developing accessible e-learning practices in higher education. *Canadian Journal of Learning and Technology*, 32(2) Spring /printemps 2006.
- Shank, J. & Bell, S. (2006). A_FLIP to Courseware: A Strategic Alliance for Improving Student Learning Outcomes. *Innovate Journal of Online Education*, 2(4), April/May. Retrieved April 10, 2007, from <http://Innovateonline.info>
- Shimabukuro, J. (2005). Freedom and Empowerment: An Essay on the Next Step for Education and Technology. *Innovate Journal of Online Education*, 1(5), June/July. Retrieved April 10, 2007, from <http://Innovateonline.info>
- Stephenson, R. (2006). Open Source/Open Course: Learning Lessons for Educators from Free and Open Source Software. *Innovate Journal of Online Education*, 3(1), Oct/Nov. Retrieved April 10, 2007, from <http://Innovateonline.info>
- Tinio, V. L. (2002). ICT in education. Presented by UNDP for the benefit of participants to the World Summit on the Information Society. UNDP's regional project, the Asia-Pacific Development Information Program (APDIP), in association with the secretariat of the Association of Southeast Asian Nations (ASEAN). Retrieved July 14, 2007 from <http://www.apdip.net/publications/iespprimers/eprimer-edu.pdf>
- Tuncay, N., & Uzunboylu, H. (2011). Walking in two worlds: From e-learning paradise to technologically locked-in. *Cypriot Journal of Educational Sciences*, 5(4), 271-281.
- Educational Decision Support Systems. (2006). UNESCO. Retrieved July 14, 2007, from http://portal.unesco.org/en/ev.php-URL_ID=5559&URL_DO=DO_TOPIC&URL_SECTION=201.html
- Ozdamli, F. & Uzunboylu, H. (2011). Teacher perception for m-learning: Scale development and teachers perceptions, *Journal of Computer Assisted Learning*, 27, 544-556.
- Valdez, G., Fulton, K., Glenn, A., Wimmer, N. A. & Blomeyer, R. (2004). Effective Technology Integration in Teacher Education: A Comparative Study of Six Programs. *Innovate Journal of Online Education*, 1(1). Retrieved April 10, 2007, from <http://Innovateonline.info>
- Wikipedia (2009) <http://www.Wikipedia.org/> accessed 10 February, 2009.
- Wiley, D. (2006). Open Source, Openness, and Higher Education. *Innovate Journal of Online Education*, 3(1), Oct/Nov. Retrieved April 10, 2007, from <http://Innovateonline.info>

- Willis, J. (2006). Creating a Working Model for Technology Integration Through a Lesson Planning WebQuest. *Electronic Journal for the Integration of Technology in Education*, 5, 25-33. Retrieved April 10, 2007, from <http://ejite.isu.edu/Volume5No1/>
- Young, L. D. (2003). Bridging Theory and Practice: Developing Guidelines to Facilitate the Design of Computer-based Learning Environments. *Canadian Journal of Learning and Technology*, 29(3), Fall/Autumn. Retrieved May 14, 2007, from <http://www.cjlt.ca/>
- Zhao, Y. & LeAnna Bryant, F. (2006). Can Teacher Technology Integration Training Alone Lead to High Levels of Technology Integration? A Qualitative Look at Teachers' Technology Integration after State Mandated Technology Training. *Electronic Journal for the Integration of Technology in Education*, 5, 53-62. Retrieved April 10, 2007, from <http://ejite.isu.edu/Volume5No1/>