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Foundations of cultural design in e-learning

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Abstract: This article is an attempt to investigate some conceptual underpinnings of cultural dimensions to the design and use of ICT based initiatives in educational settings, particularly in Eastern contexts like Iran, promoting a sociocultural perspective on education, instruction and learning. The article move progressively from clarifying fundamental issues about social and cultural factors on globalizations of education to definitional and operational considerations, and focused on several major issues: Understanding of Culture; Cultural considerations in designing and using ICT in e-learning; Cultural dimensions in E-learning; Characterizing some common traits in Eastern pedagogical cultures. By discussing the challenges and potential opportunities with preference to social and cultural factors in globalization of education, it was pointed that there are certain context-specific social and cultural factors indices - as well as educational attainments – that affect the access to and use of its in developing countries. These factors / dimensions must be recognized and analyzed for the E-learning to be properly adapted and developed.

Keywords: E-learning; instructional designing; Culture; Cultural dimensions; Eastern pedagogical culture; Developing countries; Iran

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Biographical notes: Davoud Masoumi is PhD candidate at University of Gothenburg, Sweden since late 2004. He has been engaged in research in the areas of instructional technology and e-learning in higher education setting with a special interest in the enhancing quality of off-campus environments in developing countries social and cultural context. Currently, he is finalizing his thesis on enhancing quality in virtual campus in developing countries cultural - pedagogic context.

Berner Lindström is professor of education at University of Gothenburg, Sweden and co-director of the Swedish national center of excellence LinCS. He has been serving as member of a number of governmental boards and committees in the field of distance and networked learning and higher education. His research interests is on technology mediated learning and the transformation of knowledge in contemporary society, both within the context of educational institutions and working life.

1. Introduction

Educational reforms in developing countries like Iran are taking place in the context of a more general globalization (Carnoy, 1999). A part of this globalization is the development of a “network society” (Castells, 1996), with its global interconnectedness and globalized knowledge. The networked society, building on technological advancement and new infrastructures, is an important context for the development of educational technologies and services across national and cultural boarder and for the educational practices on a national level.

International trade in educational services in cross-cultural markets has expanded rapidly over recent years (Marginson, 2004; Rogers, Graham, & Mayes, 2007; Yadrick, Regian, Gomez, & Robertson-Schule, 1995). Educational services are one of twelve different kinds of services, which are negotiated at the WTO. Students’ studying abroad is the largest part of this. The spatial configuration of this mobility testifies to an increasingly differentiated and uneven global geography of education. Generally, students flow from East to West (Tawfik & Goodwin, 2004). However, providers of educational services are also delivering programs in other countries or providing programs on a global basis using modern information and communication technologies (e-learning) (Carrington, Meek, & Wood, 2007; Marginson, 2004). There is a widespread provision of programs, courses and qualifications by providers originating from, and in some cases operating, outside the students home country (Marginson, 2004).

This global market, which is streams from West to East are undertaken in diverse ways including:

- Delivering mass higher education degree-based programs directly like Phoenix University,
- Establishing a Virtual University Network with partners from developed countries (with cooperation with local authorities)
- Exporting technologies, for example e-learning platforms, and educational materials, which are designed and furnished in developed countries for utilizing in domestic virtual universities.

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ICT is at the core of this development. Technological advancement and the building of human capabilities are interrelated: each requires the development of the other for success and the “rethinking [of] educational systems to meet the new challenges of technology” (Edmundson, 2007, p. 99). Using e-learning is one way to increase access to education in general and technology education in particular, subsequently introducing new technologies, building new infrastructures and also improving technological literacy, on an individual and societal level.

However, e-learning is a cultural artefact and as such it is infused with characteristics that reflect those of the designing culture (Downey et al., 2004; Edmundson, 2004; Henderson, 1996). In other words, any e-learning application will possess characteristics that reflect the culture of its originators, from the types of pedagogies they prefer to their cultural expectations and values. Educational services in general and e-learning in particular are important vehicles for cultural transformations in the globalization. Furthermore, globalization is dominantly grounded in Western culture, *westernization* (Al-Rfouh, 2006), and challenges existing cultures in developing countries in different ways. Cultural expectations and values in developing countries are influenced and challenged. However, there has been little focus on considering culture in developing educational products (Marginson, 2004). Accepting the view that culture is an integral part of every aspect of instructional design (Edmundson, 2003), it is important to consider social and cultural differences in designing and providing education and instruction (Collis, 1999). This is so not only for reasons of efficiency but also in order to promote a globalization that build on a recognition and appreciation of cultural differences.

Socio-cultural theoretical approaches offer a foundation to consider culture as an integral part of the phenomenon of education, instruction and learning. According to Aykin, “socio-cultural design” needs to become a priority issue in designing and developing e-learning environments (Aykin, 2005). In a Vygotskian ((1978)) interpretation, the transformation of education as a cultural practice is fundamental to the transformation of society. Educational technologies as “cultural media” provide means for the propagation of cultural values in the transformation of these educational practices. They fulfil an important mediating function across cultures and generations. In the context of globalization they are both revolutionizing and conservative.

People, as cultural agents, are at the core of this. Learners’, teachers’ and other stakeholders expectations about their lives, about the meaning of education, about knowing and learning significantly influence the shaping of the educational practices (Johari, Bentley, Tinney, & Chia, 2005).

Correspondingly, there are a number of questions to be put by politicians, educators (educational developers, instructional designers, teachers etc.) and students in the developing world: How can educators in developing countries begin to see culture as an integral part of the designing and utilizing of new technologies? What changes in mindset, instructional practices, curriculum, and policy need to take place before utilizing ICT in education? How will the integration of culture be a contributing factor to improving the e-learning environments? Given questions like this, an important step is to identify and analyze social and cultural dimensions that may affect e-learning in different settings (Rogers et al., 2007).

This article is an attempt to make a contribution to the development of a “culturally sensitive” approach to instructional design in general and the design of e-learning in particular. We do this by first examining some conceptual underpinnings for understanding culture as a phenomenon and to consider culture in the design of education. We review some of the literature relevant developing a methodology for the design of e-learning that

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include a cultural analysis. We will then discuss some traits in Eastern pedagogical cultures, building on the research literature and on empirical work of our own. Lastly we will draw some general conclusions.

2. Understanding culture

Definitions of culture like many other multi-definition concepts in humanity science are diverse, encompassing many aspects of human behaviour. The most common views on culture are based on the idea of culture as a set of value patterns that are shared across individuals and within groups (Szewczak, 2002).

Hofstede (1997) defines culture as: “patterns of thinking, feeling, and potential acting that all people carry within themselves” (p. 9). He also describes culture as being reflected not only in the “patterns of thinking, feeling and acting” but also in the “ordinary things in life: greeting, eating, showing or not showing feelings” (Hofstede, 1997, p. 11). The source of this lies within the social environments in which people grow up and make their life experiences.

According to Kashima (2000), some researchers, inspired by Vygotsky among others, see culture as “a process of production and reproduction of meanings in particular actors’ concrete practices (or actions or activities) in particular contexts in time and space”. Another point of view also announced by Kashima is that culture is a “relatively stable system of shared meanings, a repository of meaningful symbols, which provides structure to experience” (Kashima, 2000, 2004).

Hofstede (2001) portrays the manifestations of culture as layers around a core of values. He proposed the metaphor of an “onion” to show how the various layers of culture relate to each other. In his view the outer layers of culture are more visible, superficial, and potentially changeable, whereas the inner layers involve elements that are less visible and change very slowly.

Figure 1 Hofsted’s “Onion” Model

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Adopted from Dunn & Marinetti (2007)

Straub et al. (2002) take this a step further and use an analogy of a virtual onion, where the layers are permeable and do not have a given order or sequence, to convey the complexity and lack of predictability of an individuals' cultural characteristics

From a sociocultural perspective culture is seen as constituted in human practices, in continuous negotiations mediated by symbolic artefacts. Culture is something stable, but not static, at the same time as it is dynamic and changing over time. Furthermore, a persons' cultural identity is something socially constructed and learned, not inherited. It is made up of experiences gained when growing up in his or her culture (Mushtaha & De Troyer, 2007).

Culture viewed as a set of core values and patterns of thinking, feeling and acting (Ford & Kotzé, 2005) influence the way in which people communicate amongst themselves and with cultural artefacts, for example, e-learning systems, computer tools of different kinds or informational resources provided on the Internet. Culture affects how we think, how we act, how we respond to our environment, or in short who we are. And more specifically, how we view knowing and learning – our personal epistemologies - is a part of our cultural identity.

Sociocultural theorizing build on the premise that learning and knowing is socially and culturally situated (Bruner, 1996; Cole, 1996; Lave & Wenger, 1991; Wertsch, 1991). Learning is situated in cultural practices (mostly institutional), permeated with cultural values and norms about knowing, learning, teaching, instruction and more generally education. These values and norms, inscribed in cultural practices, comprise what we can call an educational culture.

3. Cultural considerations in design of e-learning

Considering educational culture(s) in instructional design – bringing culture to the nexus of discussions and enactments (i.e., what people do and how they do it) in designing e-learning, and seeking to align teaching and instruction to the cultural contexts of ethnically diverse learners – challenges mainstream notions of teaching and learning.

It should be clarified that culture itself cannot be objectified as just another factor to be programmed into designing e-learning environments. It is also more than simply helping learners with their identity or to help learners with examples that come from their own culture (Young, 2008a, 2008b). Culture is a fundamental dimension that permeates education on different levels, influencing design and use, as well as the different actors that are involved (for example designers, teachers, administrators, students) (Wild, 1999). The inclusion of a cultural dimension is thus a move to improve the quality of e-learning.

According to Seufert (2002) the cultural impact on e-learning could be looked upon from two core perspectives: design and use. This distinction is important for several reasons. As Wenger (1998) argued it is only possible to design *for* learning (for example by designing a technology, a curriculum, a method, a teaching learning material, a learning environment etc.) and not learning (or for that matter teaching) *per se*.

As noted in the introduction E-learning models, technologies and curricula are often designed and developed in a different cultural context from where it is used. Whereas in one culture an educational product is very successful, for another culture it is not appropriate. Learning frameworks and software cannot be transferred in an isolated manner without its culture-related roots and the cultural context in which it is produced (Watson, Ho, & Raman, 1994). Apart from these considerations in designing, in the application of new e-learning environments should also be considered in terms of the immediate cultural differences that become apparent in the culture-based attitudes formed towards the use of technology (Van den Branden & Lambert, 1999)

However, culture influences the acceptance and use of e-learning systems appears at different levels (Collis, 1999): society, organization, group, individual, and the subject matter discipline. Considering these different levels, the question is how more specifically to account for culture in the process of designing e-learning environments? What to look for and what to include?

A vast number of pedagogical models of e-learning design have been provided in literature (Collis, 1999). Research by Hall (1981), Hofstede (1997), Trompenaars and Hampden-Turner (1998) and others have identified a number of dimensions of cultural variation, i.e. dimensions that appear in all cultures and in which cultures might differ.

Hofstede (1997) in his studies identified five dimensions that can be used to distinguish different cultures. These dimensions relate to subjective culture.

- In cultures with a *low-power distance index (PDI)*, like most of the European and North American countries, teachers and students tend to be perceived as equals. Teachers are not authoritative subject matter experts, but rather are facilitators of student-centred education. In *high-PDI cultures*, like most of Eastern countries such as Iran, teachers are authorities, and students not only do not question their knowledge but they see them as experts (Hofstede, 1997).

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- Students in nations with a *high- individualism index (IDV)* expect to be treated as equals among peers and faculty, preferring to work as individuals and expecting recognition of individual merit. In contrast, members of collectivist societies depend on social relationships and may expect differential treatment based on their social class. Globally, collectivist societies are predominant (Hofstede, 1997).
- In cultures with a *high-masculinity index (MAS)*, students compete openly, are achievement-conscious, and are disappointed by failure, whereas in a *low-MAS culture*, teachers and students have more relaxed expectations.
- In cultures with a *high uncertainty avoidance index (UAI)*, the teacher is regarded as an expert—an unquestionable authority. Students prefer a structured learning environment, which is manifested through precise objectives, strict timetables, precise answers, and rewards for accuracy. In contrast, in *low- UAI cultures*, teachers act as facilitators of learning; students are comfortable with vague objectives, loose timetables, and multiple solutions to problems, and prefer to be rewarded for originality.
- Hofstede's fifth cultural dimension, *long-term orientation (LTO)*, was theorized after his original 1984 study; he did not propose specific ramifications of this dimension in education.

Selinger (2004) made a formative evaluation of the Cisco Networking Academy – a web based course (developed in US) about installing and maintaining computers – involving more than 300,000 students in 149 countries. She discovered widely differing use of the same online materials in different cultures. For example, student in Sweden and Denmark were encouraged to take responsibility for their own learning than those in France. The Scandinavians had greater autonomy, collaborated more, and relied less on the tutors than those in France, where there were little group work or peer support. These findings are broadly consistent with Hofstede's terms: more feminine (low MAS); low power distance (low PDI); and lower in uncertainty avoidance (low UAI) in Sweden and Denmark than in France.

Despite the fact that it is widely referred to, Hofstede's work has been subject to extensive criticism. His cultural dimensions ignore important characteristics of culture such as religiosity, language, history and context (Yeganeh & Su, 2006).

Trompenaars and Hampden-Turner (1998) described eight cultural dimensions at the national level. Each of their dimensions, like Hofstede's, was described as a continuum bounded by two extreme, opposing characteristics. Unlike Hofstede, they rarely speculated about the implications of cross-cultural dimensions in education (Edmundson, 2006). In their first main category, "Relationships and Rules," Trompenaars and Hampden-Turner (1998) identified five dimensions.

- *Universalism vs. particularism* relates to the balance between rules and relationships. Universalists tend to adhere to rules, whereas particularists regard rules as flexible guidelines over which relationships typically take precedence.
- The *individualism vs. communitarianism* dimension, similar to Hofstede's IDV, refers to the tendency to perceive oneself primarily either as an individual or as a member of a group.

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- Members of *affective vs. neutral* cultures may be, respectively, emotionally expressive or emotionally detached and objective, in verbal or non-verbal communication.
- The *specific vs. diffuse* dimension accounts for the degree and level of interaction between people. Members of specific cultures tend to use direct and purposeful communication, while diffuse cultures tend to be less direct, often to the point of appearing evasive.
- The *achieved status vs. ascribed status* dimension relates to whether a culture accords status based on accomplishments or according to markers of group membership. This dimension shares characteristics with Hofstede's PDI.

They also described two dimensions in the category "Attitude Toward Time":

- *Orientation to past, present, and future* reflects how members of a culture perceive the importance of each of these periods.
- The dimension *sequential vs. synchronic* is related to whether time is perceived as linear and composed of discrete events or as circular and composed of integrated, overlapping events.

Lastly, they categorized "Attitudes Towards the Environment":

- Members of *inner-directed* cultures believe they have significant control over the outcome of events and aggressively try to manage situations, whereas
- members of *outer-directed* cultures believe they are subject to an external locus of control, and thus are more comfortable and flexible when confronted with change.

Hall (1981) envisioned cultural differences as poles on opposite ends of continua that resemble the indices and characteristics, respectively, of Hofstede (1984, 1997) and Trompenaars & Hampden-Turner (1998). He pinpointed six main dimensions for social and cultural setting: *Speed of Messages*; *Context*; *Space*; *Time*; *Information Flow*; and *Action Chains*.

According to Hall, members of *monochronic (M-time)* cultures tend to emphasize schedules, promptness, and segmentation of activities. Their communication tends to be low context, depending more on direct language than on subtle signals or context. In contrast, members of *polychronic (P-time)* cultures engage in multiple activities simultaneously and tend to focus on relationships and the completion of transactions, rather than on scheduled events. Their communication is high context because it is dependent upon what they already know about their culture (Edmundson, 2006). Low-context communication emphasizes how intention or meaning can be best expressed through the explicit verbal message, whereas high-context communication emphasizes how intention or meaning can be best conveyed through the context (e.g., social roles, positions, etc.) and nonverbal channels (e.g., pauses, silence, tone of voice, etc.) of the verbal message (Hall, 1976). In general, Western cultures, such as the U.S. and Finland, tend to be low-context along the high-low-context continuum and most Asian cultures, including Korea, are more likely high-context (Moran, 1991; Robinson, 1996; Steward & Bennett, 1991).

Another well-known model was developed by Reeves and collaborators (Reeves, 1992; Reeves & Reeves, 1997). The Reeves model identifies fourteen pedagogic dimensions of interactive learning; each of them is represented on a

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continuum with a graduated range of values between the two extremes. The model defines dimensions of effective interactive learning in the Internet (WWW). The dimensions included in the model were driven from research and theory in educational technology, cognitive science and adult education. The model of Reeves has been characterized as a “systematic evaluation of computer-based education (CBE) in all its various forms (including integrated learning systems, interactive multimedia, interactive learning environments, and micro worlds)” (Henderson, 1996, p. 1). Reeves’ cultural model is presented in Figure 2.

Figure 2 Reeves’ cultural model

Adopted from Reeves (1992)

The model focuses on the pedagogical aspects of online learning (Reeves & Reeves, 1997), rather than on the media and technology components. The pedagogic dimensions in the model include epistemology, pedagogic philosophy and psychology, goals, instructional sequencing, the value of errors, role of teacher/instructor, learner control, and cooperative learning.

Based on Reeves’ work, Henderson developed a comprehensive model for investigating cross-cultural dimensions of education called the “Multiple Cultural Model”. She added the idea of cultural profiling and integrating multiple

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cultural perspectives (Nisbett, 2003; Zhang, 2007), so that various cultures can preserve their identities and can adapt technologies to their cultural environment and not vice versa. According to Henderson “minority ethnic groups or developing nations looking for technological solutions to their educational and training needs will not be well served by packages designed for a majority Western culture” (Henderson, 1996, p. 93).

Figure 3 Henderson’s multiple cultural model

Adopted from Edmundson (2004)

The Henderson model comprises dimensions or features that can distinguish whether the e-learning environments' characteristics matched the preferences of learners across different cultures. Henderson's model has been simplified by Edmundson (2007), who among other things eliminated certain dimensions (program flexibility) and combined others (epistemology, pedagogical philosophy, underlying psychology and goal orientation) into a singular dimension of pedagogical paradigm.

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The models described above have identified cross-cultural polar dimensions that appear in any cultural settings (Edmundson, 2007). However, Hofstede, Trompenaars and other theorist of intercultural communication do not specifically deal with cultural aspects of education. Reeves, Henderson and Edmundson have extended concepts of cultural dimension into education and more specifically to e-learning environments, proposing a multidimensional approach.

The Henderson model is basically eclectic in nature and can provide a pragmatic typology of cultural dimensions, which might work as a tool for considering dimensions of culture in designing e-learning.

However, from a sociocultural perspective it could be argued that the model does not cover important aspects. For one thing, technological tools and infrastructures (cf Guribye, 2005) should explicitly be targeted, bridging between levels of analysis – micro/individual, meso /classroom and macro/educational system

(Jones, Dirckinck-Holmfeld, & Lindström, 2005).

Concerning specific dimensions, the characterization of pedagogical philosophy as ranging between instructivist and constructivist does not capture the contemporary discourse in education. For example, Sfard (1998) in a seminal article made a distinction between two metaphors of learning the *Acquisition Metaphor* and the *Participation Metaphor* that build on a socioculturally informed analysis. It could even be argued that there is a more fundamental distinction to be made between a pedagogical philosophy that build on an epistemology that view learning as socially based (Vygotskian cultural historical theory) and an epistemology that build on learning as rooted in the disposition of the individual (for example Piagetian constructivism) (cf Alexander, 2007; Martin, 2006). In another seminal paper, Koschmann (1996) argues along the same line for a new paradigm of learning, taking a sociocultural stance, distinguishing “Computer Supported Collaborative Learning” from a more individual constructivist model.

This also implies or build upon another view of the poles of the underlying psychology, the major distinction to made between a cognitive and a sociocultural psychology.

From a sociocultural perspective with focus on the organization and constitution of activities and practices a dimension that specifically emphasize modes of communication and interaction (see for example Mercer and Wegerif (1998)) should also be considered.

In contemporary educational literature there is also a major distinction made between “instructional modes” as teacher- and student-centered. Instructional mode as a dimension could also be considered. However, instructional mode as a category polarized in this way also highlight how a dimension in itself could be culturally situated. Examples can be drawn from comparative studies of mathematics education. For example, it has been argued that descriptions of mathematics education in East Asia cannot easily be done in terms of the distinction between teacher- and student-centeredness (Huang & Leung, 2005; Zuzovsky, 2008). Mok (2003) showed that the teacher-centred instruction was characterized by a conscious teacher intervention together with students’ active thinking moments, which in the Henderson model could be interpreted as a combination of instructivist and constructivist pedagogical philosophy.

4. Characterizing some common traits in Eastern pedagogical cultures

In this part some common traits and attributes in Eastern cultural contexts are provided. These cases and examples are drawn based on a literature review and results from an ongoing empirical study, as well as on personal experiences from the Iranian context.

The general finding is that social and cultural values vary between Eastern and Western worlds. For instance, members of Western cultures tend to be more independent and unimpressed by authority. In contrast, members of Eastern cultures tend to be less independent and highly respectful to authority (Edmundson, 2004). It should however be noted that making a distinction between Western and Eastern cultures is a simplification. There are large, and sometimes critical, differences between cultures within these spheres. There are also substantial differences within the Western sphere. For example, a study in the European Open University Network project revealed cultural differences between larger European regions in attitudes towards the use of technology in education (Van den Branden & Lambert, 1999).

Several studies¹ (Delialioglu & Yildirim, 2007; Edmundson, 2004; Ford & Kotzé, 2005; Osman & Herring, 2007; Zhang, 2007) across the Eastern countries have been conducted based on the social and cultural models presented above. It appears that there are great commonality and similarity in social and cultural values, expectations and traits among many Eastern countries (Osman & Herring, 2007; Zhang, 2007). Despite their commonalities, however, there are some differences among Eastern countries related to their specific social and cultural roots and contexts such as religion, etc.

Taking into account of these cultural commonalities could be very critical in designing and utilizing successful e-learning systems in other Eastern contexts such as Iran (Osman & Herring, 2007). To conclude this section, a review of dominant cultural commonalities between Eastern countries' educational settings is presented.

Generally, the Eastern culture embraces a dialectical and holistic world view, perceiving human beings and nature as one unified entity, considering the interdependent relationship between living things and their environment, the natural and human elements, and their mutual shaping in the construction of meaning (Zhang, 2007). The Eastern tradition seeks harmony, order and well-being in a society by underlining social obligations of individuals and classes, who should behave in line with the social expectations of their social roles, spanning from seniors to young children, from governors to common citizens, for both male and female (Osman & Herring, 2007; Zhang, 2007).

Zhang (2007) draws a picture of a typical Eastern classroom which involves a teacher conducting expository teaching in front of a large class of well-disciplined students, seated in rows. However, this does not necessarily mean that teachers merely "feed" knowledge to learners passively.

This cultural tradition, together with other social factors such as economic structures, political systems and population pressures, has shaped a group-based, teacher-dominated, and centrally organized pedagogical culture.

¹ The authors could not find any study that examines dominant social and cultural paradigms in educational settings of Iran, specifically.

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Gunawardena (1996), drawing on Hofstede's (1986) work, explains that the Turkish culture like other Eastern countries manifests a high degree of Power Distance, a high Intolerance to ambiguity, and tends to be Collectivist in nature. According to Hofstede (1986), a culture with high Power Distance is typically teacher-centred. Teachers are regarded as the source of wisdom and knowledge and are supposed to guide the way. They are usually not challenged. In a typical lecture students will only speak when addressed, but they will do so more readily in small groups.

In a university context in a high Power Distance culture, authorities are also more reluctant to share information; in many cases they would even limit access to information. In the same vein, authorities in any sections try to control who has access to what. Such procedures are often advocated by gatekeepers using referring to ethical and moral norms, social security etc.

Patronage (belittling yourself / denying your own self and identity/ and emptying yourself of any standing you may have in front of the superior) is relevant to consider in educational settings. It encourages people to internalize obedience and respect for superiors and authority (Osman & Herring, 2007), which is highly encouraged in Eastern countries and particularly in Middle East. As pointed by Usun (2004), learners embracing such cultural norms may be disadvantaged in environments with less hierarchical order. Furthermore, this is an example of an issue that is not easily separable from the ideologies and political system of these societies.

Easterners are more in favour of collectivism, urging individuals to surrender their own genuine interests for the sake of the well-being of the collective, being that a family or a state (Huang, 2002). Close interpersonal relationships are emphasized, while independence and self-reliance are downplayed. Also collectivist cultures display an Intolerance for Ambiguity, which implies a preference for structured learning situations.

Preserving the face of both students and teachers is very important. Such cultures may also emphasize maintaining social harmony in learning situations (Osman & Herring, 2007). Norms like this obviously influence the conditions for adopting a Western participatory model of instruction, heavily relying on group interactions with students critiquing each other's work. For instance, Gilliam (2004) argued that in Asia, many focus-group participants were reluctant to openly criticise software due to social norms of politeness and 'saving face'

Oral traditions seem to play an important role in the most of the Eastern countries' culture, which should be considered in designing tools in e-learning environments. In cultures with a strong oral tradition, text-based tools, like chats, for communication in virtual communities might be less functional, since the status of written text might influence how it can be used. As an example, Uncertainty Avoidance cultures rely less on e-mail for important issues, in most of these countries authorities still think you need a signature and so on. For instance, even in some of the virtual universities in Iran, students are required to submit all their educational and administrative affairs (in particular financial ones) by mail due to e-mail is not recognized as a formal document and have them signed.

In interface designs there are a number of cultural considerations to be made. A trivial, but still important, issue is the use of different colours. Quigley (2002), for example, noted an important cultural difference in the use of red colour in China and in the USA. In China red is considered a lucky colour "hong baos". In USA and most of the Western countries red is an alarm signal. Similarly, the crescent moon is a symbol of faith in Islam.

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Zhang (2007) suggests that cultural commonalities among Eastern countries of relevance for education could be sorted out in four main categories: *Epistemological beliefs*; *social values and issues*; *Centralized educational system*; and *Culture of examination*. The categories can be summarized as follows:

- Epistemological beliefs:
 - Transferring or banking of knowledge is the dominated paradigm in most of the educational settings. So, in these setting reciting and reproducing the transferred knowledge is highly encouraged;
 - Learners should show full respects to knowledge, teachers and authorities in general, be modest, concentrate on grasping the knowledge and principles and putting them into action, and reflect on their learning and actions regularly;
 - Great minds based on the religious and traditions mostly create knowledge and highlight moral principles, which were explained and communicated to the public by scholars and teachers.
- Social values and issues:
 - Seeking social recognitions; accordingly “degree diseases” is popular in most of these cultural contexts, more and less due to getting higher education is accounted as a way to get social recognition;
 - Emphasizing moral education; usually through this Moral education the political authorities version of moral is posed alongside of educational levels;
 - Strengthening orders and disciplines;
 - In contrast to the Chinese social and cultural contexts – which Zhang (2007) refers to as “Encouraging learning together” and “Large population – large class sizes are not the case in Middle East, particularly not in Iran. In these contexts the design of instruction is based on the individual pupils’ practices and instructional settings are considered as contests in which learners are encouraged to be the best in these competitions.
- Centralized educational system:
 - Central governments design and execute policies and standards for school finance, curriculum, textbooks, assessment, and teacher preparation;
 - Teachers are required to teach uniform content, often based on the standard pace in reference to official teachers’ guides.
- Culture of Examination:
 - Education is regarded as an essential way to compete for higher social status;
 - The performances of learners, teachers, and schools are largely defined according to exam scores;

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- Preparation for high-stake exams poses large pressure on learners, parents, teachers, and administrators. In some cases students from early year are prepared for final exam. Interestingly, these kinds of preparations are one of largest businesses in Iran.

Educational practitioners in various social and cultural contexts tend to incorporate new technologies by selecting, although unconsciously sometimes, technologies that fit the existing pedagogical culture, designing them in familiar patterns, and adapting them in line with the highlighted cultural features of the target societies (Zhang, 2007). Such adaptation processes can be seen through the specific strategies for ICT design and use adjusted by Eastern societies (e.g., centralized management and planning, community-based professional development, selection and use of learning software).

As Zhang (2007) noted the incorporation of new technologies as cultural artefacts often triggers deep cultural interactions, which involve both “assimilation” and “accommodation,” in much the same ways as how one’s existing cognitive structure interacts with new stimuli from the environment, leading to his/her cognitive development. Self-engagement and reflection on cultural interactions underpinning ICT application for Eastern countries, ICT integrated with new learning approaches (e.g., learner-centered, problem-based, self-directed learning) represent a new pedagogical culture, which is often “imported” from Western countries together with the epistemological beliefs and social values it is rooted in.

Perhaps this (how and in what extent “adaptation” and “accommodation,” should / could be undertaken) is one of the great challenges in developing countries like Iran, while they are embracing Western technologies a large number of them do not have suitable infrastructures. In most of these countries educational systems haven’t had serious reforms for decades despite country’s enormous economic growth (almost 5- 9 percent annually). With the rapid development of ICT, educators cannot keep their own traditional role as expert and transmitter of knowledge to students, and they should instead assume the role of mediators, mentors, and thus become facilitators. This implies a new role and shifting educational paradigms from a didactic mode of instruction to a facilitative and constructive one. In other words, socio-cultural contexts influence peoples’ expectations of themselves as learners and teachers as well as their learning style and strategies (Rogers et al., 2007) .

On the other hand, importing a “foreign” artefact often involves the intake of the cultural values and practices associated with it. Confronted with new technological artefacts that embody alternative pedagogical cultures, teachers will be confronted with inconsistencies and conflicts, and need to make necessary changes to accommodate the new artefacts (Zhang, 2007). It appears that shifting and adapting social and cultural infrastructure is one of the main priorities along with customization of new technology.

Stressing cultural solidarities alongside considering their unique characteristics among various cultural contexts, not only in Eastern countries but in Western Countries, could lead gatekeepers and designers to achieve a deeper understanding of the cultural underpinnings of e-learning tools and models. Features of Eastern pedagogical culture, based on empirical studies could / should be considered as a framework for designing and using e-learning environments in Eastern societies.

The “fit” between the characteristics of the “local” educational cultures in developing countries and the designed e-learning model should be considered in order for a subsequent educational practice to be successful. This is

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especially the case, since the designs most often include adaptation of e-learning models and tools developed in other cultural settings.

Likewise, a shift in social and cultural values and expectations has great influence on educational paradigms and orientations (Bodycott & Walker, 2000; Usun, 2004). This shift in values stimulates a need to understand the new values and the processes that led to change.

5. Conclusions

This article is an attempt to investigate some conceptual underpinnings of cultural dimensions to the design and use of ICT based initiatives in educational settings, particularly in Eastern contexts like Iran. In this paper we moved progressively from clarifying fundamental issues about social and cultural factors on globalizations of education to definitional and operational considerations, and focused on several major issues: Understanding of Culture; Cultural considerations in designing and using ICT in e-learning; Cultural dimensions in E-learning; Characterizing some common traits in Eastern pedagogical cultures.

By discussing the challenges and potential opportunities with preference to social and cultural factors in globalization of education, it was pointed that there are certain context-specific social and cultural factors indices - as well as educational attainments – that affect the access to and use of Its in developing countries. These factors / dimensions must be recognized and analyzed for the e-learning to be properly adapted and developed. To accomplish this identifying local and national level cultural dimensions of educational environments and assistive cross-cultural dimensions for designing and utilizing new technologies is potentially productive. In other words, the fit between cultural characteristics and educational practices as well as technical aspect like platforms, e-portfolio and etc. should be considered to be an important factor in the successful implementation of e-learning in developing countries' educational settings. Undoubtedly, learning about values and expectations of stakeholders in a society (not the least learners and educators) becomes an imperative task with far-reaching implications for educational decision makers and educators, especially for those operating in societies like Iran that have undergone dramatic social, economic, and political changes.

Since ICT based initiatives are known to adjust themselves based on social and cultural dimensions other than cultural dimensions at the national level, this ongoing adaptation could be both educational and technological, as the integration of culture would situate learners in their “cultural frame of reference” (Lave & Wenger, 1991; Young, 2008a). In our view, changes are multi-leveled involving changes of individuals, institutional activities and practices, as well as technological tools and infrastructures society. E-learning as a practice might work as a boundary practice and the models and tools that are used work as boundary tools (Star & Grisemer, 1989; Wenger, 1998), bridging between cultural boundaries and promoting development.

An important aspect of this is the appreciation and acknowledgement of aspects of cultural differences. For example, according to Tawfik and Goodwin (2004), students can adjust faster to taking courses in a different cultural presentation style if they realize and face with a separate academic community (dissimilar paradigm), and they begin to adjust themselves to the new setting.

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Education is reflecting changes in society, but is also an important vehicle for societal change. E-learning is a part of these processes of change and development, reflecting both broad and specific globalization trends. These trends have clear economical underpinnings.

For developing countries, it is fundamental to relate to developments of educational paradigms in a globalization perspective, and E-learning is a case in point. A shift of educational (hence cultural) paradigms does not equal to unifications of developing countries educational values with Western ones “propelling world-level integration and standardization” (Schriewer, 2003, p. 277). Shifting the educational paradigms and practices gradually, not just attempting to take over models and technologies developed and used in other cultural settings is fundamental. As stated in the introduction, education in general and E-learning in particular should benefit from an explicit awareness of cultural diversities.

Clearly, we can draw on a large base of research in different areas, but more research needs to be done concerning the social and cultural aspects in design and use of e-learning environments in Eastern contexts, with an attempt to understand the nature of the diversity in educational cultures, practices and activities. Such research, for example carried out using a design-based approach (Brown, 1992) might also be beneficial for the development of education and instruction in the Western world. Globalization, then would take on a slightly new meaning.

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