

# Culture in e-Learning: Is it important?

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## Abstract

*The paper explains why culture is an important design feature for eLearning environments, and provides insight into the process of selecting and representing cultural elements which complement the learning process. Issues relevant to the introduction of cultural elements into these eLearning environments are also explored such as the influences culture has on learner needs, task design, feedback mechanisms, and assessment modes. The lessons learnt from an exploratory study, from the perspective of culturally-oriented educational software design are outlined.*

**Keywords:** culture, learning, educational multimedia, e-Learning environments

## INTRODUCTION

Increasing numbers of mobile devices capable of accessing the Internet have propelled e-Learning forward such that deficiencies in cultural-awareness can no longer remain unattended. Originally, e-Learning content and online tools were considered to be more usable if they were designed without any culture-specific features. However, developing culturally neutral content and tools is virtually impossible since cultural tendencies pervade every design choice. The design of user interfaces, the selection of teaching strategies, the format and content of the educational material all vary depending on the cultural background of the developers (McLoughlin & Oliver 2000). Subtle cultural influences seep into the final product and this can be counter-productive to learning when these effects clash with the practices and beliefs of the students. So, by internationalizing or localizing e-Learning products (Young 2007), certain users may be included and others left out thereby working against the e-Learning goal of providing individualized instruction to any learner at any time. This happens largely because the cultural background of a learner plays a significant role in shaping his/her learning habits, and cultural appropriateness can no longer be treated as an optional personalisation factor.

## THE INFLUENCE OF CULTURE ON LEARNING EXPERIENCES

### What Constitutes Culture?

According to Savard, Bourdeau & Paquette (2008), a person's culture can be considered to be individual and collective. Here, individual culture concerns the "set of general knowledge acquired by an individual" whereas collective culture refers to the "set of usages, customs, artistic, religious, and intellectual expressions that define and differentiate a group, a society". Therefore a student's individual culture, formed by his/her typical interests, peculiar beliefs, misconceptions, and specific inclinations, is biased by his/her collective culture which is in turn dependant on

his/her ethnic identity, religious and societal practices, regional history, and geographic location. These inherent influences give rise to an understanding of the motivational stimuli that compel a student's particular attitude(s) towards learning.

### **Significance of Culturally-Aware Instruction**

The paper poses the question: Is culture important in e-Learning? Based on the arguments made earlier, culture is of great importance because of its impact on the learning style of a student (Subramony 2004). Since a learning style typifies an approach to learning, the cultural heritage of a student would certainly affect which approaches he/she tends towards. Work done in the area of culturally-aware instruction reveals that students are more motivated and they exhibit increased self-regulated learning when elements of their culture are reflected their curriculum of study and used in their learning experiences (McLoughlin & Oliver 2000; Robbins 2006). A student's cultural background also has an effect on what type of instructional method the student is more comfortable with. Zhu, Valcke & Schellens (2008) report that Chinese culture is exceedingly teacher-centered and consequently Chinese students did not favour a social constructivist e-Learning environment since there was very little teacher-presence compared to their Flemish counterparts who are accustomed to blended learning approaches. Expectations concerning instructional feedback are also defined by one's cultural background. For example, Hudley and Daoud (2007) found that students with a Latino background were more receptive when a positive interpersonal relationship was formed with their teachers compared to students with an Anglo background who valued academic validation more than a warm relationship. Assessment modes also differ across cultures because different cognitive styles are often adopted. Fleer (1999) illustrates that Aboriginal learning cultivates strong skills in visual, spatial, and long-term learning whereas the test procedures in educational software available to students are not designed to test these skills. Consequently, Aboriginal students are considered to be underperformers and this is solely because of the inappropriate test procedures. These dimensions of learning style, teaching approaches, reward allocation, and feedback requirements show that cultural influences cannot be separated from the learning process since culture is an integral part of the identity of an individual.

### **BARRIERS TO DEVELOPING CULTURALLY-AWARE E-LEARNING SYSTEMS**

Despite the compelling connections between culture and learning, culturally aware learning environments are limited in practice. This is largely because of the complexities in representing culture computationally (Blanchard & Mizoguchi 2008), because current instructional designs lack cultural sensitivity (Young 2007), and because of the perceived decrease in reusability of the content and tools (McLoughlin & Oliver 2000). Culture is an ill-defined domain; this means that it is difficult to define what makes up a culture since culture is shared by members of a group or society and very often members vary in their embodiment of aspects of their culture (Blanchard & Mizoguchi 2008). E-Learning environments are in essence pieces of software and so any features must be expressed in a well-defined, unambiguous manner. As a result, many developers have shied away from this because of the complexity in reliably representing aspects of a particular culture. In addition, developer partiality towards stereotypes and personal interpretations compromises the authenticity of any cultural representation; this can be detrimental to learning if it is offensive to the learners hence it has been avoided altogether. Young (2007) points out that the dearth of culturally-aware ICT systems can also be attributed to the lack of guidance regarding the integration of culture-specific elements into present-day instructional design. Above all, e-Learning is centered on the notion of reuse; hence by meeting the cultural needs of one user, another user's needs may not be met unless the design of the content or tool is reworked and this is costly and time-consuming. All of these reasons contribute towards the general notion of not considering culture as an asset during the development of e-Learning systems.

## **RECOMMENDATIONS FOR REPRESENTING AND USING CULTURE**

Different recommendations for representing culture in software systems appear in the literature. These range from simple user interface design guidelines to learner profiling to inclusion of tangible cultural elements. The most common recommendation made by researchers is the consideration of the learner's background from a pedagogical perspective. Young (2007) and Flear (1999) suggest examining the dependency between a learner's cultural background and his/her skill and ability levels. McLoughlin and Oliver (2000) prescribe the use of instructional techniques that compliment the learning style(s) dominant to a particular culture. Economides (2007) advocates all of the above and argues for the use of a learner cultural profile based on mainstream cultural models, however no implementation details are given. Another common recommendation involves the use of symbols, familiar contexts, customs and traditions belonging to the culture that one wishes to integrate into the e-Learning environment. For example, Flear (1999) uses illustrations of flora and fauna indigenous to Australia, and incorporates examples of the local beliefs, life experiences and symbols native to Aboriginal culture in an educational (reading and writing) software package called *Tinja* developed for Aboriginal students. Robbins (2006) makes use of analogies and local metaphors in a collaborative digital scrapbook built for South Pacific students, and goes a step further by giving the users the power to customise the tool with their own content and cultural elements. By having a person native to the culture provide cultural content, the authenticity of cultural representation is greater and more recognisable. This point was also stressed by many of the researchers as a means of addressing the stereotypical and biased viewpoints that may be introduced by developers who are not native to the culture that the tool or content is being developed for. Interesting work is being done by Blanchard and Mizoguchi (2008), and Savard et al. (2008) on the development of holistic cultural learner models that are represented computationally and that can be shared by e-Learning tools. These models incorporate the pedagogical and cultural aspects of the learner and show great promise for bolstering the spread of culturally-aware e-Learning.

## **EXPLORATORY STUDY OF STUDENT ATTITUDES TOWARDS CULTURALLY-ORIENTED EDUCATIONAL SOFTWARE**

An exploratory study was conducted at the University of the West Indies, St. Augustine campus, which focused on using humorous aspects of Trinidad and Tobago culture in an attempt to improve undergraduate student attitudes towards their introductory programming course (Mohammed & Mohan 2009). Two culturally-oriented educational programming game prototypes were built which featured cultural elements common to Trinidad and Tobago. These included use of comical phrases expressed in Trinidad English Creole language, and references to local events and items which have amusing names. Twenty four students evaluated the games and over 80% of the students appreciated the use of culture in the game prototypes, and they were especially engaged when humour was involved. Enriching learning experiences, national pride, and humour were the top reasons cited by students for which they would use a culturally-oriented educational game. These preliminary results reveal that the local culture does play an important role in promoting positive student attitude towards learning, and has an impact on student motivation and interest in the subject. In addition, the study highlights the need for careful design of educational software which incorporates cultural elements since these representations can be interpreted differently by students.

## CONCLUSION AND FUTURE WORK

Culture is rapidly becoming an important consideration in the design of eLearning software firstly because of the increase in the number of users accessing software over the Internet, and secondly because of the sheer diversity in the cultural backgrounds of these users. Conventional learning has often taken place in a localized setting with a teacher guiding one or more students in their search for knowledge. With the advent of the Internet, this traditional setting has changed drastically since students now have access to teachers and educational material from over wide distances. Consequently, these students are exposed to a variety of educational tools, teaching strategies and learning materials which were not developed with their own personal needs in mind. This has dramatic usability implications especially when the mainstream culture for which e-Learning materials are designed clashes with that of the users.

Based on the encouraging evidence established by the exploratory study, the research discussed in this paper focuses on investigating how culturally-oriented learning environments impact upon student learning experiences, and whether certain aspects of culture produce greater effects than others. Further refinement and improvements are planned for one of the cultural game prototypes. A limited amount of cultural elements were used in this prototype, so expansion of the cultural coverage in the game is also necessary. Additional features such as cultural player profiling and measurement of motivation levels are also part of the plans intended for this research. Future tests include longitudinal studies with larger sample sizes (than used in the exploratory study) which would give clear, fine-grained evidence relating specific aspects of culture to any development of positive student attitude or learning gains resulting from the use of the culturally-oriented learning environment.

## REFERENCES

- Blanchard, EG & Mizoguchi, R 2008, 'Designing Culturally-Aware Tutoring Systems: Toward an Upper Ontology of Culture', in E Blanchard, and D Allard (eds.), *Culturally Aware Tutoring Systems*, Montreal, Canada, June 23-27, 2008, pp. 23-34.
- Economides, AA 2008, 'Culture-Aware Collaborative Learning', *Multicultural Education & Technology Journal*, vol. 2, issue 4, pp. 243-267.
- Fleer, M 1989, 'Reflecting Indigenous Culture in Educational Software Design', *Journal of Reading*, vol.32, issue 7, pp. 611-619.
- Hudley, C & Daoud, AM 2007, 'High School Students' Engagement in School: Understanding the Relationship to School Context and Student Expectations' in F Salili, R Hoosain (eds.), *Culture, Motivation, and Learning: A Multicultural Perspective*, Information Age Publishing, Charlotte, U.S.A., pp. 365-391.
- McLoughlin, C & Oliver, R 2000, 'Designing learning environments for cultural inclusivity: A case study of indigenous online learning at tertiary level', *Australian Journal of Educational Technology*, vol.16, issue 1, pp. 58-72.
- Mohammed, P & Mohan, P 2009, 'Student Attitudes towards Using Culturally-Oriented Educational Games to Improve Programming Proficiency: An Exploratory Study', to appear: *Proc. of 4th International Conference on E-Learning and Games, Edutainment 2009*, Banff, Canada, August 9-11, 2009.
- Robbins, C 2006, 'Providing Cultural Context with Educational Multimedia in the South Pacific', *Educational Technology & Society*, vol. 9, issue 1, pp. 202-212.
- Savard, I, Bourdeau, J & Paquette, G 2008, 'Cultural Variables in the Building of Pedagogical Scenarios', in E Blanchard, and D Allard (eds.), *Culturally Aware Tutoring Systems*, Montreal, Canada, June 23-27, 2008, pp. 83-94.
- Subramony, DP 2004, 'Instructional Technologists' Inattention to Issues of Cultural Diversity among Learners', *Educational Technology*, vol. 44, issue 4, pp. 19-24.
- Young, P 2007, 'Integrating Culture in the Design of ICTs', *British Journal of Educational Technology*, vol.

39, issue 1, pp. 6-17.

Zhu, C, Valcke, M & Schellens, T 2008, 'Cultural Differences in the Perception of a Social Constructivist E-learning Environment', *British Journal of Educational Technology*, vol. 40, issue 1, pp. 164-168.