Technological Tribal Territories: How Culture Influences Learning Beyond Content in Educational Technologies. A Narrative Review of Literature

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Abstract

As learners and educators embrace educational technology tools, and as this technology becomes ubiquitous in education and training, it is beneficial to understand how culture affects learners’ engagement with content. Learners interact with educational technology content in various ways and this technology is not free of cultural values; intentional or not. Culture affects how learners interact with technology. Using a narrative review of literature, this paper examined research on the impact of culture on educational technology tools and how this affects learning of content. This review suggests that educational technology content creators and instructors should be alive to the varying cultures of learners if learners are to fully engage with this content.

Keywords: Culture, educational technology, educational content, values, beliefs.
for learners, who see information and content through its lenses. Kuhn (1970) illustrated this by suggesting that if two people, standing at the same place, gaze in the same direction and are given a stimulus, they will not experience the same outcome. This, he notes, is because, the same stimuli can produce very different sensations for different people because of their cultural backgrounds. Similarly, culture colors learners’ response to educational technology content. This also suggests that individuals who belong to the same group and share similar education, language, experience, and culture are likely to have a similar response to stimulus (1970).

Defining Culture

To understand the firm grip that culture can hold over learners, it is useful to define what it is. The study of culture has its origins in the discipline of anthropology where researchers generally studied isolated communities (Tierney and Lanford, 2018). Cultural studies focus on patterns of meaning as embodied in symbols, the symbolic means by which people communicate, and other forms of knowledge and information engagement. Culture is thus explained through meanings symbols and communicated forms of knowledge (2018).

Of significance importance is the reality that culture is ever-changing. Cultural meanings and definitions evolve depending on the context, the time and the prevailing circumstances. These tend to explain meanings, symbols and other communicated forms of knowledge practiced by a community. This type of study of culture often involves much time studying individuals and communities within their natural environment. Cultural researchers in these environments seek to establish other factors that affect how groups respond to various stimulus. Young (2008) notes that in instructional design, definitions of culture are not only based on anthropological perspectives, but also sociological and educational perspectives as well. Hofstede (2016) defines culture as a collective programming of the mind, and it manifests itself not only in values, but in more superficial ways like symbols, heroes, and rituals. Hofstede (2011) also notes that culture is the unwritten rules of how we use language, empathy, collaboration and competition among groups of people. He states that culture provides moral standards about how to be accepted into a group and through symbols, heroes, rituals, laws, religions, taboos and all kinds of practices, it defines the requirements of being accepted into a group. He, however, cautions that often culture’s core remains hidden in unconscious values.

Culture is not static; it evolves, it changes, and adapts to new realities. Some of the norms and values that were previously accepted are often discarded after a while. Tierney notes that culture is also a concept subject to changing meanings depending on the academic discipline that it is being studied from.

Successful learning beyond content, therefore, should take into consideration the learners’ cultures. Students do not come to classrooms as tabula rasa, blank slates. By the time learners are interacting with an instructor and content, they are already members of some culture or grouping. Benson (2003) notes that students arrive in classrooms with thoughts and practices of daily living that are imbued with their various cultures. She advises that the wide diversity in the cultural background of today’s students makes it imperative for educators to consider varying cultural norms in classroom relationships.
Additionally, globalization has had a substantial impact on learning. Suarez-Orozco and Qin-Hilliard (2004) note that educational systems world-wide continue to mimic and copy each other by borrowing curricula, teaching methods, and assessments and tests. In this way, cultural norms and values are transferred from one corner of the world to another. Learners are thus expected to acquire a worldly cultural sophistication to be able to navigate such culturally rich and diverse educational content as presented by globalization of learning.

**Culture and educational technology**

**Language**

Language is one of the most important indicators of culture. A community that can speak the same language is often able to articulate the same fears and hopes – a binding influence of culture. Jiang (2000) posits that without language, culture would be non-existent. Language affects and influences culture and often it is the anchoring point for cultural expression. Jiang notes that language is the symbolic representation of a people since it comprises their historical and cultural backgrounds and their current understanding of life and thinking. Indeed, he states, culture and language are inseparable. He notes that some people consider language as the mirror of culture. Language and culture are intricately interwoven such that language is used to express culture.

Language has powerful significance in culture as it allows communication between learners and the instructor. Often when it is not used in within the local cultural context, it can distort meaning. An example is the use of different names for the same thing. For example, the game with 11 opposing players per team, a ball and two goals, is called ‘soccer’ in the US, yet the rest of the world identifies it as ‘football’. Another example is the ‘shopping cart’ in the US, ‘shopping basket’ in the UK and ‘shopping trolley’ in Australia, all referring to the same thing. Additionally, ‘tone’ can have a major impact on any communication, including interactive learning environments. Educational technology should recognize these discrepancies and tailor instruction to meet the learners’ cultures.

Another example of the influence of language on technology is provided by Burnett (1997) when she reported that a group of French-speaking teachers had a difficult time interacting with computer language such that they were unsuccessful in reaching learners at an American university. These teachers focused instead on computer literacy over linguistic proficiency, thus failing their students. This suggests that the language of computers can deter people from interacting with educational technology.

**Beliefs**

Educational technologies affect the cultural beliefs of its users. Research by Al Lily, Borovoi, Poland and Vlaev (2016) suggests that educational technologies can take possession of cultural societies. They note that once educational technologies are released into a population, societies struggle to determine the nature and limits of their own technologies.
The beliefs of the teachers also impact how the students interact with educational technology. Ertmer and Ottenbreit-Leftwich (2010) note that beliefs act as a lens or filter when people process new information. They state that teachers filter new information delivered through professional development programs through their belief systems before they assimilate it into existing knowledge structures. Therefore, they conclude, a greater correspondence between teachers’ beliefs and training content leads to greater learning. Additionally, teacher beliefs are heavily influenced by the subject taught and the culture of the learning institution in which they participate.

Some cultural beliefs also hinder learners from fully interacting with educational technology. Lam (2000) notes that some students who are English language learners are raised in cultures where they would feel threatened by technology because they did not want to make ‘fools’ of themselves in front of their peers. These students often came from cultures where technology is not so prevalent.

Values

The values of learners differ from one culture to another. These values make the learners understand and absorb learning tasks differently. However, educational technologies are not value free. Educational technologies often disrupt the highly centralized hierarchical traditional learning systems. For learners who are not used to these technologies, their learning values are disrupted if the designers fail to recognize this possibility of value distraction.

In addition, the values of instructors on educational technology also vastly differ. Ertmer and Ottenbreit-Leftwich find that teachers’ value beliefs with regards to technology, are based on whether they think technology can help them achieve the instructional goals they perceive to be important. Thus, they suggest, when new technology is presented to instructors, the instructors make value judgments about whether that approach or tool is relevant to their instructional goals.

It has also been suggested (for example, Lam, 2000) that some educators do not value the role of educational technology because it clashes with their traditional roles as the expert in a classroom. Some educators’ values still hold that the educator is the primary source of knowledge in a classroom and that they are reluctant to relinquish this power.

Behavior

Culture influences behavior and this can increase or lower a learner’s interaction with educational technology. Morgan (2000) shows how cultural behavior impacts learner comprehension of content. He gives the example of differences in cultural behavior that causes students to view science learning differently. He notes that in less developed countries, western science and scientific processes are less likely to be questioned and challenged, while students from more developed countries (who are used to scientific studies) have a less complimentary view of science and scientists. These differences can make learners either engage or disengage from learning scientific content. Educational technologies can be seen by some learners as scientifically-based and highly ‘technical’ which influences how they interact with them.
Learning

Content design is influenced by the designer’s culture, and the culture of the organization for which content is being designed. In this way, learning is affected by the culture of the educational technology. McLoughlin and Oliver (2000) note that current instructional design models are limited because they do not fully contextualize learning experience. They point out that the design of educational technology is not culturally neutral but is based on the certain epistemologies, learning theories and goal orientations of the designers themselves. These researchers point out that since culture is pervasive, serious consideration should be given to issues concerning the social and cultural dimensions of task design, communication channels and structuring of informing so that it adequately responds to culturally diverse learners.

Successful instructional design is often culturally inclusive such that learners can easily access learning resources in a manner that is congruent to their values, beliefs and styles of learning (McLoughlin and Oliver, 2000). These researchers explain that highly contextualized content that is culturally specific is likely to meet the needs of the learners for whom it is intended.

Other examples of cultural discrepancies in educational technology use

One example of how culture can interfere with learning is provided by Archee and Gurney (2013) who state that black text on a white background in WebCT design is used in western cultures to represent purity, plainness and professionalism. However, they state, in many Asian countries, white is associated at a subconscious level with death and feelings of grief. Therefore, instructors who rely on white backgrounds in web design, are appealing to students from western cultures but psychologically inhibiting Asian students from interacting with these pages. They note that colors have varying associations in different communities including blue for enlightenment in India, red for prosperity and good luck in China, among others. Designers should be purposeful in choosing colors and contextualizing them for the culture of their students.

To enhance learner understanding, animation has been used by content designers in educational technologies. Animations are an important supplement to improve the learners’ understanding of the content. Graphics afford learners comprehension of content and foster insight, especially in understanding abstract concepts. However, graphics are best interpreted when the content designer understands learners’ cultural backgrounds. As Tversky, Morrison and Betrancourt (2002) state, visual presentation may not be a problem for learners; rather it is the perception and cognitive limitations in the processing of a changing visual that may deny the learner full understanding of the content. These cognitive limitations are partly because of the cultural incongruence between the learner and the content designer.

Additionally, a significant amount of educational technology learning is conducted through website access, especially through Learning Management Systems (LMSs). Positive outcomes have been realized when the website design is adapted to users’ cognitive styles and abilities, that is, their cultures. Kralisch, Eisend, and Berendt (2005) note that culture can be understood in terms of the distribution of certain cognitive styles, needs and preferences among the population.
of a country or a certain region. Using empirical studies, Kralisch, Eisend, and Berendt, suggest that because of their cultures, users have preferences for certain website structures and information presentation. These are governed by whether they are from monochronic or polychronic cultures, which determine learners’ preferences. These, they note, can be fine-tuned by altering degrees of navigational freedom, reading order, text lengths, number of texts and cross-referencing, among others.

Consideration should also be given to the effects of gaming in educational technology. Digital games are saturated with cultural symbols and other cultural paraphernalia. Although digital games are claimed to enhance retention of content, learners who do not identify with the cultural symbolism within these games often do not benefit from this instruction. Squire (2002) gives the example of cultural wars that involve conservative US officials who have termed digital games as instigators of violence among the youth, and that these games may have contributed to gun violence in learning institutions. A chasm in the understanding of the cultural functions of games in learning appears to have led to this view.

Music is the salt by which culture is seasoned. Music allows cultural expression, it enriches and defines cultures, and helps define cultural identity. The development, over the years, of technologies, has allowed the dispersion of music to many parts of the world. This music and sound has inevitably found its way in educational technologies. Music and sound in educational technologies has been used to prompt learners, to provide an interlude between learning units, to remind learners of milestones achieved and other reminders. Because educational technology is a creation of north America and western Europe, this musical expression often reflects an American or Euro-centric tradition. This means that the cultures of indigenous people and people who do not identify with western cultures, are often musically under-represented in educational technology.

Other examples can be found in the use of texts and other symbols, all of which vary from one culture to another. Further, gestures, handedness (use of left or right hand) in interaction, superstitions, war, politics and religion, among others, can be culturally misconstrued unless they are properly situated within the local cultural context.

Conclusion

In creating educational technology content, it is imperative that the influence of culture be taken into consideration. Al Lily et al. (2016) suggest that instead of overlooking societal and cultural values during technological developments in educational settings, these values should be given recognition and political weight by policy-makers and researchers. It is also noted that the importation of educational technologies fuels a colonizer/colonized relationship that makes locals reluctant to import foreign technologies. To make educational technologies culturally acceptable to locals, they should be modified for these local contexts.

Educational technologies are now global learning tools, and their use is continuing to increase. A study on the integration of culture in the Unified Theory of Acceptance and Use of Technology (UTAT) model by Nistor, Lerche, Weinberger, Ceobani and Heymann (2014), concluded that since higher education is increasingly being internationalized, the design of
content should consider different expectations for the learners because of their varied cultural backgrounds. Archee and Gurney have also suggested the use of anthropologist Edward Hall’s (1976) cultural framework which argues that cultures can be situated in relation to one another along a continuum which defines the styles with which they communicate.

It would also be important for educational technology designers to adopt appropriate pedagogical frameworks that recognize the role of culture in learning. McLoughlin and Oliver have suggested that community of inquiry framework is best suited for this purpose because it is based on the principles of cognitive apprenticeship, common goals, shared inquiry and peer learning which all draw from the learners’ cultures. The community of inquiry framework emphasizes collaboration, shared experience and participation which is ideal for addressing the needs of culturally diverse learners.

Therefore, for educational technology to successfully engage learners, it should be designed while taking into consideration learners’ and instructors’ cultural perspectives. As Zhao and Frank (2003) have suggested, technological innovation is less likely to be adopted if it deviated too greatly from the existing values, beliefs, and practices of teachers and administrators in a learning environment. As educational technology creators and content designers strive to reach learners, consideration should be made of their cultural backgrounds. Practitioners should consider how to reach diverse learners because content, without regard to culture, may not always address the learners’ needs.

References


