

Intercultural Design in e-Learning: A Comparison of Three Different Approaches

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Abstract. This paper attempts to describe and compare three different approaches for accommodating cultural differences in the design of e-learning systems: Collis' [1] ten guidelines for designing online course-support systems; Mercado, Parboteeah, & Zhao's [2] four key issues for designing online courses; and Henderson's [3] multiple cultures model of instructional design for e-learning. These three approaches are contrasted not only to each other, but also to several other related models, theories and frameworks. At the end, the most effective and useful approach appears to be Henderson's theoretical multiple cultures model. The choice of the three approaches was made solely based on their frequent citing in literature, and on the time constraints of this project; a larger research project may use this paper as a starting point, and possibly evaluate more approaches supporting the development of frameworks that acknowledge cultural differences for the design of e-learning systems.

Keywords: cultural differences, e-learning, online learning, intercultural design.

1 Introduction

The purpose of this paper is to compare and contrast some of the currently adopted and used frameworks, theories, and models for acknowledging and accommodating intercultural differences as far as e-learning is concerned. The aim is to identify the commonalities and the differences between these approaches, along with their strengths and weaknesses, in order to assess their suitability, and possibly identify areas for improvement.

This is not a complete review of literature in the area of accommodating cultural differences in e-learning; given the time constraints and the scale of this project, a sampling of what exists is presented here, and the approaches chosen to be compared and contrasted were almost randomly selected from the most-frequent-cited works. A factor that contributed to this selection is that the first (Collis) [1] and the third (Henderson) [3] are related, since Henderson's earlier work served as the basis for Collis' guidelines. Moreover, the second one is based on Hofstede's work, which, according to Williamson [4: p. 1392] "is probably the dominant explanation of behavioral differences between nations", a view which is cited also in quite recent studies such as the one by Cronjé [5]. By no means has the selection of these approaches made them

more valuable than others; the work done in this paper can be seen as a starting point for a larger research project that would categorize and compare all available approaches.

2 Definitions

In order to avoid possible misinterpretations of the concepts under investigation, this section attempts to define the meanings of the terms that are used throughout the paper.

2.1 Theories, Models, Frameworks, Guidelines

The development of a framework could be the first step towards formulating a theory, i.e. a speculation; “Theories are formulations of apparent relationships or underlying principles of certain observed phenomena that have been verified to some degree” [6: p. 5]. A model is usually based on a theory, and adapted in a way to address and/or solve a specific issue or problem. As Bélisle [6: p. 5] indicates, “Models are general hypothetical organisations or structures, often based on an analogy, used in analysing or explaining a phenomena and generally conducive to prediction or applied action”. Generally speaking, theories and models can be considered as frameworks that aim to explain the interrelationships between the concepts under investigation.

On the other hand, guidelines are more general. The online Cambridge dictionary defines guidelines as “information intended to advise people on how something should be done or what something should be” [7]. Guidelines can be viewed as frameworks for practice; unlike theories and models, guidelines may refer to concepts and issues that are not necessarily related or connected to each other. Nevertheless, guidelines may draw from theories and/or models.

Theories and models have a more explanatory nature, while guidelines a more descriptive one; bringing this discussion to the area of teaching and learning, it can be stated that all three can serve for the development of frameworks that can guide course designers.

2.2 Culture

Different disciplines regard the concept of culture from different viewpoints. From an anthropological perspective, the word culture is associated with the interests of people who belong in a particular society, along with the ways these people behave, while from a sociological perspective culture refers to the people’s behaviours and beliefs as these are shaped by the society. [9].

Young [9] maintains that, in the field of Human Computer Interaction, the prevailing definition of culture is the one issued by Hofstede back in 1991. Although old, this definition is embraced by scholars in more recent papers [5], [10]. Moreover, the same definition, slightly refined, also appears in Hofstede’s more recent work: “[culture]... is the collective programming of the mind that distinguishes the members of

one group or category of people from others” [11: p.6]. In this definition a group refers to “a number of people in contact with each other”, whereas “A category consists of people who, without necessarily having any contact, have something in common” [11: p.479]. To illustrate, all students in a Psychology class of a specific college form a group; they know each other, and they communicate with each other. All college students majoring in Psychology can be seen as a category; these students may attend different colleges, and they may not know each other or communicate with each other - they just share a common characteristic. While posting their definition for culture, Hofstede & Hofstede also point out that culture is acquired, rather than inherited. Culture is learned, therefore, it should not be confused either with human nature or with an individual’s personality; the former is the common denominator of all humans, while the latter refers to all the unique characteristics of a particular person. It is noteworthy that, although Hofstede & Hofstede [11: p.5] criticize the Western language inaccuracy of considering culture as synonym of “civilization” or “refinement of the mind” arguing that such synonyms have an unacceptably narrow scope, Hofstede’s own work on individual differences and cultural dimensions might be seen as being inaccurate; this argument will be further elaborated later in this paper.

Young [9] asserts that the definition listed above is not broad enough to cover the field of Instructional Design; hence, she favors a broader definition, which attempts to embrace the interdisciplinary nature of culture:

...the patterns of behavior and thinking by which members of groups recognize and interact with one another. These patterns are shaped by a group’s values, norms, traditions, beliefs, and artifacts. Culture is the manifestation of a group’s adaptation to its environment, which includes other cultural groups and as such, is continually changing. Culture is interpreted very broadly here so as to encompass the patterns shaped by ethnicity, religion, socio-economic status, geography, profession, ideology, gender, and lifestyle. Individuals are members of more than one culture, and they embody a subset rather than the totality of cultures identifiable characteristics. [12: p. 7, quoted in [9: p. 8]]

This last definition aligns with the ones adopted by several scholars whose research is related to the acknowledgement of intercultural differences while designing technology enhanced learning (TEL) systems. To illustrate, Watson, Ho, & Raman [13] and Collis [1], in their work about cultural issues in the design of Web-based courses and in the design of group support systems respectively, chose to adopt Watson, Ho, & Raman’s definition of culture: “the beliefs, value systems, norms, mores, myths, and structural elements of a given organisation, tribe, or society” [13: p. 45], while Chen et al. [8: p. 220], in their paper about cultural issues in the design of TEL systems define culture “as the beliefs, philosophy, observed traditions, values, perceptions, and patterns of action by individuals and groups”; although Chen et al.’s work may seem outdated, their definition is embraced by several researchers in more recent papers [14-16].

Definitions aside, cultures have dynamic nature; they are not static, they change [8]. As Henderson [3: p. 131] states, culture “...results through a group’s continuing adaptation to its changing social, historical, geographic, political, economic, technological, and ideological environment”.

One final concept related to intercultural differences whose meaning needs to be clarified is ‘internationalization’. Young [9: p. 9] states that “Internationalization is about the inclusion of culture-neutral specific design specifications and the creation of a cross-cultural design”. Internationalization is about designing products or systems with features that would be acceptable across different cultures [17].

3 Description and Comparison of the Three Approaches

Learning, regardless of its form, is affected by the different cultural values that characterize learners, and the effectiveness of learning may require a certain degree of adaptation to the particular cultural context. E-learning is not an exception; as Swierczek & Bechter [10: p. 291] point out, “e-learning neither eliminates cultural differences nor is it culture free”.

In an attempt to demonstrate the natural progress made through time in the research area of exploring the role of culture in e-learning, the approaches to be described and contrasted will be presented in chronological order. The three main approaches chosen for this purpose are Collis' [1] ten guidelines for designing online course-support systems, Mercado, Parboteeah, & Zhao's [2] four key issues for designing online courses, and Henderson's [3] multiple cultures model of instructional design for e-learning. These three will serve as a basis, and they will be contrasted not only to each other, but also to several other approaches.

3.1 Design Guidelines for Culture-Related Flexibility in WWW-Based Course – Support Sites [1]

Back in 1999, when the use of online resources to support learning was a rather new concept, Betty Collis explored the cultural impact on online course support systems by identifying four levels where culture occurs: societal, personal, organizational, and disciplinary. She developed a set of ten (10) design guidelines for online course-support systems, drawing from the work of several scholars, including Henderson's original “Multiple Cultural Pedagogic Model of interactive multimedia instructional design” [18], which in turn was based on Reeve's fourteen (14) effective dimensions of interactive learning systems [19, cited in [18]].

Collis' ten guidelines for online course support systems are the following [1]:

1. The system should be as flexible and adaptable as possible.
2. Both instructors and students should have a variety of roles, and they should be able to easily exchange and/or modify these roles. This also refers to providing “an eclectic variety of types of learning experiences” (p. 208). An online system should allow both parties involved to adapt it to the learning experience of their choice, such as instructivist or constructivist, group or individual, etc.
3. The system should not be treated as the primary source of content. The instructors and the students should be able to customize the level and type of interactivity aspect. Collis' main arguments were two: one, that people were not constantly connected to the Internet; it seems important to point out the obvious, since this

particular aspect has changed throughout the years, especially with all the smart phones and other portable computing devices that have become available. Her second argument was that people may not particularly enjoy reading from the screen, which, although is still true, it is once more noteworthy mentioning that the situation has improved, and more and more people prefer to read documents on the screens of their e-book readers or tablets.

4. The system should be used as a supplement to the course material, not as a substitute of the teacher. The validity of this guideline can be disputed, given the fact that it was meant for blended courses; pure online courses are a possibility today, and, in some cases it is perfectly possible to have a computer system replacing the teacher; examples include, but are not limited at, Computer and Web Based Training (CBTs and WBTs) systems, or in automatically graded assessments through Learning Management Systems (LMS).
5. The system should provide a variety of learning materials, such as multimedia presentations, instructor notes, web links, student notes, etc. All currently used LMS fully comply with this guideline.
6. The system should have minimal technical requirements. This is still valid today, however, 'minimal' is completely different; to illustrate, the speed of a broadband connection today is incomparable with the speed of an Internet connection back in 1999. The same applies to the speed of processors, memory and storage capacities, etc.
7. The system should have the minimum possible amount of pre-set text and graphics on the screen; it should provide context sensitive help and allow for customized content. Given the degree of customization that characterizes most systems today, one can safely assume that Collis' suggestion for customization has been widely adopted.
8. The methods and the degree of communication and interaction should be customizable. The computer system should act as a transparent intermediary allowing the teacher to communicate with the learner as directly as possible; in Collis's own words, "Design for human-human communication, not human-computer interaction" [1: p. 209].
9. The course organisation should be adaptable and customizable.
10. The system's design should take under consideration the instructors' skills and time availability.

As far as the second guideline is concerned, it can be observed that Collis, quite wisely, neither favors nor condemns a particular learning form over another; instead, she stresses the importance of allowing the student and the teacher to select the learning experience they prefer. This 'eclectic' feature stems from the work of Reeves [19] and Henderson [3], [18]. Collis mentions instructivism and constructivism approaches as examples of the potential choices that can be made. It seems necessary at this point to clarify that these two approaches refer to theories of learning. The constructivist learning theory states that learning occurs as a metacognitive process, as the result of constructing new knowledge and understanding, based mainly on already acquired knowledge and schemata. On the other end lies the instructivist learning theory,

sometimes also called ‘behaviorist’ learning theory because of its roots, which states that learning occurs through replication of knowledge, based on given instructions [3], [6], [18], [20-21].

3.2 Critical Culture-Related Elements to Be Addressed When Designing Online Courses [2]

In 2004, Mercado, Parboteeah, and Zhao identified the following key elements for designing online courses [2: p. 186]:

1. The design and presentation of course materials.
2. The character and form of facilitative information (instruction).
3. Assessment and the nature of assignments.
4. The form and nature of feedback

The three researchers attempted to map these four elements with the following four cultural dimensions, as these were identified by Hofstede [22]:

1. Power distance. The higher the power distance element, the less willing are people to challenge or question their superiors. Consequently, students whose culture has a high power distance regard their instructors as people with ultimate authority and knowledge.
2. Uncertainty avoidance. The higher the uncertainty avoidance, the more structured and familiar options are preferred. Students with high uncertainty avoidance cultural values favor highly structured courses, with predefined step-by-step instructions given to them.
3. Individualism – Collectivism. The more individualistic the culture, the more independent the people, with emphasis on personal liberties. Students with highly individualistic cultural values exhibit good leadership qualities, but they do not favour group work.
4. Masculinity – femininity. The more masculine the culture, the more assertive, competitive, and materialistic the persons. Students with highly masculine cultural values tend to value more personal achievement.

This mapping of Hofstede’s [22] cultural dimensions with the four key design elements resulted in the following guidelines [2]:

1. Design / presentation of course materials:

Cultural sensitivity determines the success or failure of web sites. In particular, high power distance can be accommodated by more symmetrical, formal and ordered design. High uncertainty avoidance can be supported by limited choices and fewer data, since users want to be able to predict the behavior of the interface. High individualism would require more operational freedom. More feminine societies place a higher value to esthetics and artistry.

2. Character / form of facilitative information (instructions):

The higher the uncertainty avoidance, the more structured and detailed instructions are recommended, along with more standardized tests.

3. Assessment and the nature of assignments:

Mercado et al. argue that the choice of individual or group assignments can be affected by the four cultural dimensions. In particular, they state that individual assignments are preferred by cultures with high individualism degree, since they tend to become more competitive with group assignments, with high masculinity degree, since competitiveness is higher in these cultures, with low uncertainty avoidance, and finally with high power distance.

4. Form / nature of feedback

Learners with higher power distance cultural values would prefer more formal and critical, definitive and assertive feedback, since the authority of professors is not to be challenged. On the other hand, lower power distance cultures would require more constructive, diplomatic, comprehensive feedback, along with detailed justification, since students with such cultural values have higher expectations from their teachers, and they do not take their instructors' authority for granted.

Mercado et al. [2: p. 187] point out two alternative design approaches, the "culturalization" approach, which advocates for designing multiple different versions of a web site for different target cultures, and the "cultural representation" approach, which prescribes the creation of one single shared version to be used by everyone, regardless of their cultural values. This reference to 'culturalization' vs. 'cultural representation' describes two extremes that can be found in the work of various other scholars. The research work of Eberle & Childress [23] appears to be perfectly aligned with the 'cultural representation' approach; they support the application of the framework of Universal Design for Learning (UDL) in order to accommodate cultural diversity to e-learning. UDL is based on the principles of Universal Design, also known as "inclusive design" and "design for all", which is an architectural concept that suggests that products should be designed in such a way that could be used by all people, to the maximum possible extent, without any customization or adaptation [23]. Universal Design and UDL were developed in order to accommodate users and learners with special needs, but Eberle & Childress suggest that the UDL principles can be applied to online learning as well [23].

Since Mercado et al.'s [2] findings were the results of mapping Hofstede's [22] cultural dimensions with their own key design elements, it is worth mentioning that Mercado et al. chose to overlook Hofstede's fifth cultural dimension, i.e. "Long-Term vs. Short-Term Orientation" (LTO), which advocates that people from cultures with longer-term orientation tend to be more persistent and more future-oriented [25: p. 4). Mercado et al. do refer to the existence of a fifth dimension, but they neither describe it nor justify their rationale for not including it in their mapping with their design

elements. This comes as a surprise since the LTO dimension was published in 1991, and the Mercado et al. research in 2004; LTO was already identified by the time the Mercado et al. research took place.

3.3 Multiple Cultures Instructional Design Model for E-Learning and E-Teaching [3]

In the impressive anthology of research in cultural and e-learning issues “Globalized e-Learning Cultural Challenges” edited by Andrea Edmundson, Lyn Henderson presented a refined version of her theoretical multiple cultures model. Adopting Edmundson's [20] views about the inadequacies of “multiculturalism, cultural diversity, and cultural pluralism”, Henderson demonstrates the limitations and the weaknesses of the common multicultural and internationalization instructional design models [3: p. 132].

Henderson [3] argues that multicultural and internationalization instructional design models are inadequate mainly because they do not take under consideration all aspects of the various cultural educational contexts, and she proposes this theoretical multiple cultures model as an alternative model.

This alternative approach does not praise the use of a single system for all settings; in her own words, the multiple cultures model is “an alternative way to conceptualize the cultural contextualization of instructional design of e-learning”, since it “provides the rationale and strategies for creating and adapting e-learning resources for local, national, and international e-learning contexts” [3: p. 135, 130]. She maintains that the multiple cultures model can overcome the limitations of the traditionally used multicultural and internationalization models, such as stereotyping and tokenism, and that those instructional designs that adopt the multiple cultures model can achieve coherent synergy and coexistence of the various cultural logics and epistemologies (global academic / training/ entrepreneurial cultures, gender / religion / class, dominant and indigenous / ethnic minorities cultures, and workplace cultures). Figure 1 displays the graphical representation of this model.

Henderson's model embraces the integration of three different levels of “cultural players” that are involved in a given teaching and learning situation, the global, national, and minority cultures [3: p. 136]. The shaded area at the center represents the intersection of these cultural players, demonstrating how instructional course designs should allow for the integration of all cultural influences. The bottom part of the diagram points out the eclectic nature of the paradigm; instead of advocating for a single approach, whether a behavioristic, constructivistic, or social constructivistic one, the model enables the adaptation of the learning situation to any of the three approaches according to the learning context.

This eclectic pedagogical paradigm, suggesting that it should be the choice of the instructor to select the learning experience deemed appropriate for the particular learning contexts, is a common element in the methodologies suggested by Collis [1], Henderson [3], [18], and Reeves [19]. However, this feature is not apparent in the guidelines suggested by Mercado et al. [2].

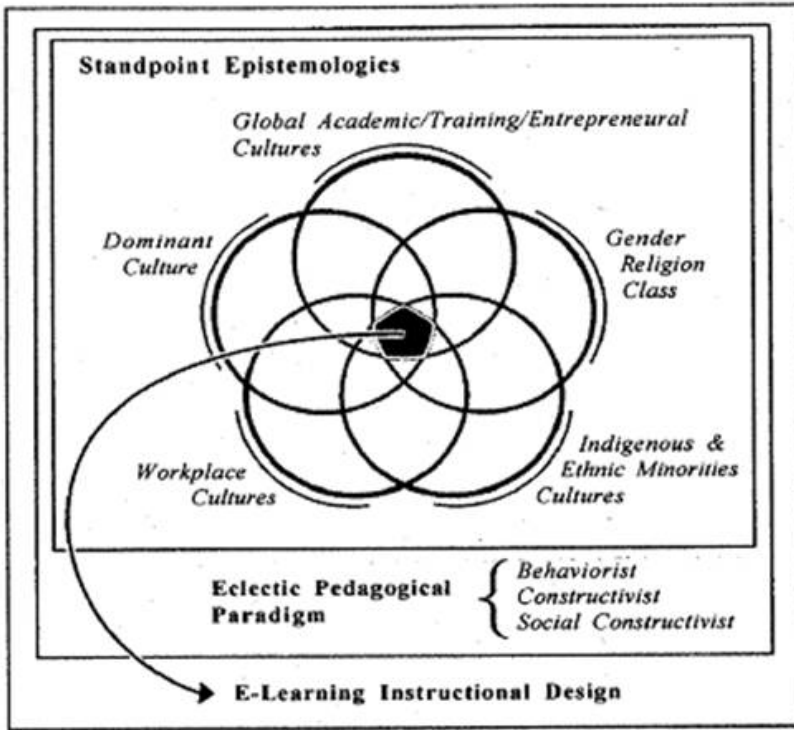


Fig. 1. Multiple cultures theoretical model [3: p. 136]

From the above descriptions of these approaches, one can visualize a continuum with the 'culturalization' design approach at the one end and 'cultural representation' approach at the other. As already explained, the 'culturalization' approach promotes the design of different versions of a system to accommodate the different cultures; the methodologies which advocate for this approach include the ones suggested by Collis [1], Henderson [3], [18] and Reeves [19]. At the other extreme, supporting the 'cultural representation' philosophy of universal design, lies the work of several scholars including Aykin [17], Eberle & Childress [23], Steinfeld & Maisel [24], and Young [9]. Mercado et al. [2] do not seem to take a position in this continuum; they merely state the two options as alternative design options. It is noteworthy to state that there are sound arguments for both approaches. However, a more thorough inspection would reveal that Henderson's arguments, which are also reflected in Collis's [1] work, are not actually against universal design. On the contrary, what she actually suggests is that the same model can be used to accommodate different contexts; but this approach should be a highly theoretical one, prescribing strategies that would allow the design of a system that could be adaptable at the users' end.

On another matter, it is notable that one of the main reasons that Henderson [3] condemns the multicultural and internationalization instructional design models is that

she maintains that these models rely on unrealistic and deceitful stereotypical assumptions for the learners, such as [3: p. 133-134]:

(a) the Asian learner is a rote learner and benefits more when a course is structured with step-by-step instructions [...]; (b) students in East-Asia, ex-Soviet Eastern European, and Middle-East Islamic countries do not challenge authority, including that of an author; (c) students from such cultures are individualist competitors due to endemic credentialing; and (d) consequently they are passive and accepting of what is delivered.

A closer inspection on this argument reveals an indirect critique to Hofstede's [22] cultural dimensions. To illustrate, the first example about the Asian learner implies that since Asian culture has a high uncertainty avoidance factor, this allows a designer to predict all Asian learners' behavior. Similar stereotypical assumption can be made for learners from cultures with high power distance (second example), high individualism (third example), and low masculinity. Henderson brings forward the work of numerous scholars as evidence in order to demonstrate that assumptions like the ones described above are in fact incorrect. Other scholars have also explicitly expressed their concern about Hofstede's work; Cronjé [5] lists a wide range of studies that question the validity of Hofstede's work, including the study of Signorini, Wiesemes, & Murphy [26] who point out that in Hofstede has acknowledged that the cultural dimensions that resulted from the results of his research are quite general, since the cultural dimensions are essentially attributes of populations, and not necessarily of specific individuals.

Coming back to comparing the work of Henderson [3] and Mercado et al. [2], it becomes apparent that Henderson's model comes in conflict with Mercado et al.'s guidelines, since the latter are based on Hofstede's work, adopting an oversimplified approach for addressing and interpreting cultural differences.

4 Conclusions

From the three main approaches that were described and contrasted in this paper, the most effective seems to be Henderson's [3]. Collis' [1] guidelines drew on Henderson's earlier work [18], and as it was demonstrated above, some of these guidelines are obsolete and are not applicable any more. Moreover, it is important to state that the value and significance of Mercado et al.'s [2] work should not be undermined; the key elements identified are indeed critical for the design of e-learning systems, although their mapping with Hofstede's cultural dimensions [22] appears to be incomplete and possibly flawed. Consequently, Henderson's [3] theoretical multiple cultures model appears as the most promising.

As it was explained at the beginning of the paper, the choice of the three main models assessed here was made solely based on their frequent citing in literature, and on the time constraints of this project; a larger research project may use this paper as a starting point, and attempt to evaluate more – or even all – such approaches, since there are numerous other models, theories and guidelines supporting the development of frameworks that acknowledge cultural differences for the design of e-learning systems.

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