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Chapter 8: Cultural Aspects and Implications of Instructional Message Design

Frances R. Dukes

Key Points:

- Multiculturalism is a set of beliefs and applications which a group of people use to make sense of themselves and the world to arrange their personal and collective lives

- Multicultural education is an educational movement that gets students to achieve academic success as a reform movement.

- Instructional message design includes applied design, fine arts, visual arts, spatial relationships, color, and secondary messages that clarify or illustrate the real message.

- Training the trainer – Preparing teachers for multicultural education includes the elements of multiculturalism that can be implemented into the educational environment.

Abstract

"There is also widespread agreement that a major priority is the reform of schools and other academic venues so that students from diverse, racial, ethnic, and social class groups can achieve equality." (Roblyer, Dozier-Henry, & Burnette, 1996).

Culture is a major determinant in modern instructional design and instructional message design for a global community of learners. Instructional designers of web-based information for world-wide and cross-culture learners are tasked with developing effective, culture-

sensitive, innovative, and useful instructional tools. "Multicultural teaching must entail reaching students by connecting with their cultural, ethnic, linguistic, social, and other affiliations" (Capuk & Kara, 2015). The tenets of learner needs analysis and instructional message design can be used to enhance learning for our culturally and ethnically diverse future learners. This chapter will examine the various challenges instructional designers are facing based on the changing demographics in America and world-wide, as well as the impact of globalized exchange of information through electronic media. The examination incudes considerations for the growing diversity of K-12 as well as the internationalization of higher education in both face to face and online learning environments.

Introduction

Sharif & Gisbert (2015) examined the quality of online learning through the perspectives of instructional designers in different countries. Their research revealed that designers had similar perspectives on the quality of online courses and the focus on assessment and course overview (see Figure 1).

> "Guidelines and publications developed by a variety of scholars and educators include similar criteria for online education which include strong institutional commitment, adequate curriculum and instruction, peer review, effectiveness, faculty-to-student ratios, attrition rates, student support, sufficient faculty support, instructional design, technology appropriateness, accessibility, and consistent learning outcome." As cited in (Sharif & Gisbert, 2015)
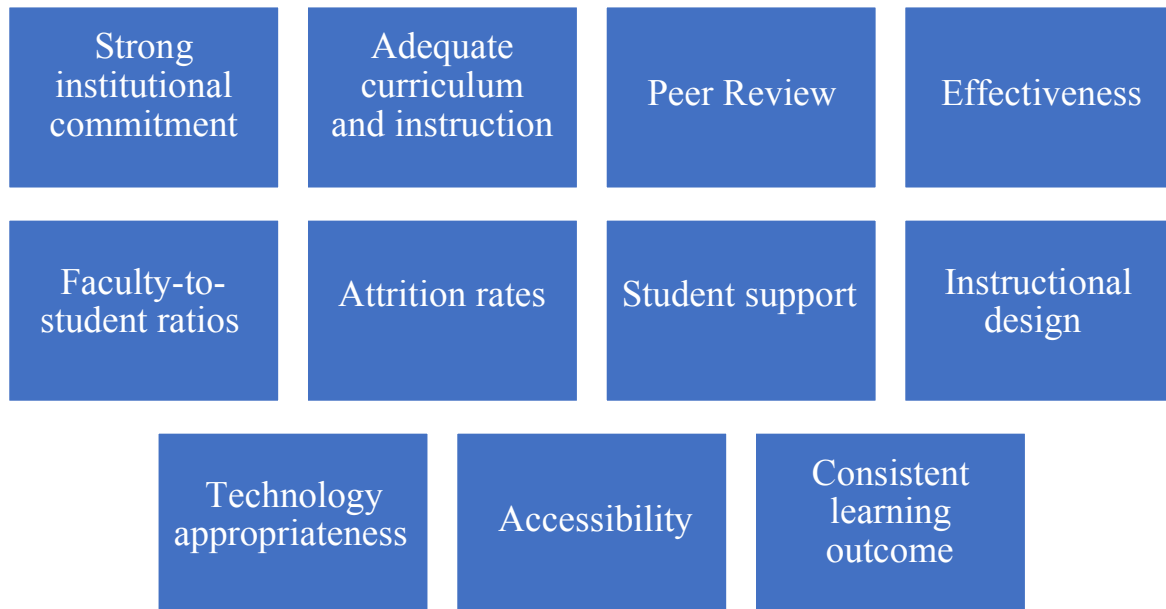
Criteria for Online Instruction

| Strong institutional commitment | Adequate curriculum and instruction | Peer Review | Effectiveness |

| Faculty-to-student ratios | Attrition rates | Student support | Instructional design |

| Technology appropriateness | Accessibility | Consistent learning outcome |

Figure 1. The criteria for online instruction developed by instructional designers.

Changing Demographics in American Schools and Colleges

The demographics in K-12 (elementary, middle, and high school) continues to change which is an aspect of modern education that instructional designers should continue to prepare for (see Figure 2). Recent data showing the changing demographics in America's public schools and colleges indicate that these schools and colleges will be more diverse than in years past, with variations by state. The National Center for Education Statistics (NCES) chart (Table 203.50) additionally included data for students whose ethnicity was two or more races. Another factor to be considered is the increase of international students in American colleges and universities.
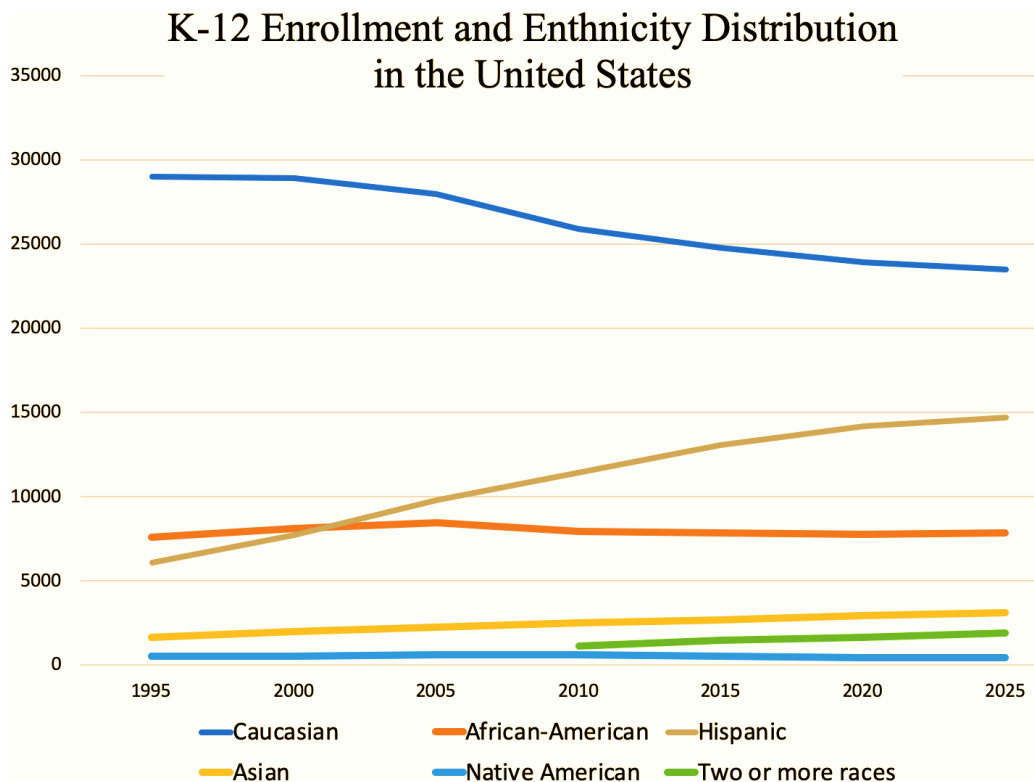
Figure 2. The ethnicity distribution (in thousands) continues to evolve in U.S. schools, as a result, instructors and instructional designers should plan to evolve their message design to consider and design for the diversity of their students (NCES, 2018).

Region and Year	Percentage distribution						
	Total	White	Black	His-panic	Asian/ Pacific Islander	American Indian/ Alaska Native	Two or more races
United States							
1995	100.0	64.8	16.8	13.5	3.7	1.1	†
2000	100.0	61.2	17.2	16.4	4.1	1.2	†
2001	100.0	60.3	17.2	17.1	4.3	1.2	†
2002	100.0	59.4	17.2	17.8	4.3	1.2	†
2003	100.0	58.6	17.2	18.6	4.4	1.2	†

Year						
2004	100.0	58.0	17.2	19.1	4.5	1.2	†
2005	100.0	57.0	17.2	19.9	4.6	1.2	†
2006	100.0	56.4	17.1	20.6	4.7	1.2	†
2007	100.0	55.7	17.0	21.2	4.9	1.2	†
2007	100.0	54.9	17.0	21.4	5.0	1.2	0.5 \1\
2009	100.0	54.1	16.7	22.3	5.0	1.2	0.7 \1\
2010	100.0	52.4	16.0	23.1	5.0	1.1	2.4
2011	100.0	51.7	15.8	23.7	5.1	1.1	2.6
2012	100.0	51.0	15.7	24.3	5.1	1.1	2.8
2013	100.0	50.3	15.6	24.9	5.2	1.0	3.0
2014	100.0	49.5	15.5	25.4	5.3	1.0	3.2
2015\2\	100.0	48.9	15.4	25.9	5.3	1.0	3.4
2016\3\	100.0	48.5	15.5	26.6	5.4	1.0	2.9
2017\3\	100.0	48.0	15.4	27.1	5.5	1.0	3.0
2018\3\	100.0	47.5	15.3	27.5	5.6	1.0	3.1
2019\3\	100.0	47.1	15.3	27.8	5.7	1.0	3.1
2020\3\	100.0	46.8	15.2	28.1	5.7	1.0	3.2
2021\3\	100.0	46.4	15.2	28.4	5.8	0.9	3.3
2022\3\	100.0	46.0	15.2	28.6	5.8	0.9	3.4
2023\3\	100.0	45.7	15.2	28.8	5.9	0.9	3.5
2024\3\	100.0	45.4	15.2	28.9	6.0	0.9	3.5
2025\3\	100.0	45.2	15.2	29.0	6.1	0.9	3.6
2026\3\	100.0	45.0	15.2	29.1	6.2	0.9	3.7
2027\3\	100.0	44.7	15.2	29.2	6.3	0.9	3.8

\1\For this year, data on students of Two or more races were reported by only a small number of states. Therefore, the data are not comparable to figures for 2010 and later years.
\2\Includes imputations for prekindergarten enrollment in California and Oregon.
\3\Projected.

Table 1. Percentage distribution of multicultural students in the U.S., demographics in schools are becoming more diverse (NCES, 2018).

Changing Demographics in Colleges

The United States hosts international students from numerous countries worldwide. During the school year 2016-2017 the population of international students was over one million or more than 5% of all enrollments (Zong & Batalova, 2018). The highest percentage of students were from China followed by India. Other countries of origin included, but were not limited to, South Korea, Saudi Arabia, Canada, Vietnam, Taiwan, Japan, and Mexico. Forty-eight percent of international students were in STEM (Science, Technology, Engineering, and Math) fields. Engineering, business management, math and computer science were in the top three fields of study for international students in School Year 2016-2017. The number of students decreased during that school year who were enrolled in intensive English, Education, and Humanities fields of study (Zong & Batalova, 2018). The table below lists the top ten states by international student population in American colleges and universities during school year 2016-17.

State	International Students	Share of U.S. Total (%)	Immigrant Population	Share of U.S. Total (%)
United States	1,079,000	100.0	43,739,300	100.0
California	157,000	14.5	10677,700	2.4
New York	118,000	11.0	4,536,100	10.4
Texas	85,000	7.9	4,729,900	10.8
Massachusetts	63,000	5.8	1,123,900	2.6
Illinois	52,000	4.8	1,783,500	4.1
Pennsylvania	51,000	4.7	870,900	2.0
Florida	46,000	4.2	4,236,500	9.7
Ohio	39,000	3.6	513,600	1.2
Michigan	34,000	3.2	662,300	1.5
Indiana	31,000	2.8	349,200	0.8
Other States	403,000	37.3	14,255,700	32.6

Table 2. International student population school year 2016-17, compared to immigrant populations (Zong & Batalova, 2018).

An Overview of Instructional Message Design

Message design is defined as the systemic and purposeful process of making decisions about communication. The concepts of message design include the visual arts and applied design, and draw from education, communication, cognition, and instruction (Dye, 1997). Instructional message design concepts and instructional outcomes are shown in the grid below (Table 3):

Concepts	Definition	"Exemplary" Errors
Grid-based design – provides psychological order.	Major differences are perceived as important	Computer-generated presentations with multiple backgrounds
Perceptibility- essential for communication	Two components: physiological and cognitive	Tiny visual presentation in large rooms, jargon, out- dated handouts
Chunk content into manageable pieces	A chunk is a discrete bit of the message	Squeezing text to make it fit
Spatial Relationships are part of the message	Relationship of size reflects relationship of meaning	Dingbat decorations (extraneous distractions), fonts that are too small
Secondary messages should support primary message	Include metaphors, graphics, models, sounds, illustrations	Dingbat decorations, Mixed metaphors
Color that evokes emotion	Physiological component: how the	Full-color media icons for leader's guide,

	eye perceives color, contrast	pastel screen on computer game

Table 3. Good instructional message design can help students, especially international students who would not have the inherent contextual benefit of domestic students (modified from Dye, 1997).

Cultural Sensitivity in Instructional Message Design

Haynie (2014) highlighted possible challenges for international students in pursuit of online degrees in the United States. Areas that may pose a challenge for international students are time zones, cultural barriers, the demands of reading and writing in English, and international acceptance of online degrees. It was noted that international students may experience challenges understanding American cultural differences and following group conversations during group chats. One of the online students stated, "they start talking in a very American way, so it's very had to follow… sometimes they talk about things that they think everyone knows, but I don't know."

In addition to language barriers, instructional message designers must also be aware of how people from different cultures will respond to the graphical interface layout, images, color, and sound in the online instruction (Chen, Mashhadi, Ang, & Harkrider, 1999). The principles of instructional message design as summarized by Sukmari (2017) include the following:

- Readiness and motivation

- Attention getting devices and directions

- Repetition

- Students' active participation

- Feedback

- Cultural Values

The ADDIE (Analysis, Design, Development, Implementation, and Evaluation) approach to instructional design treats cultural values as assets in the design and development process (Igoche & Branch, 2009). The six phases of the ADDIE conceptual design process are graphically shown below (see Figure 4).
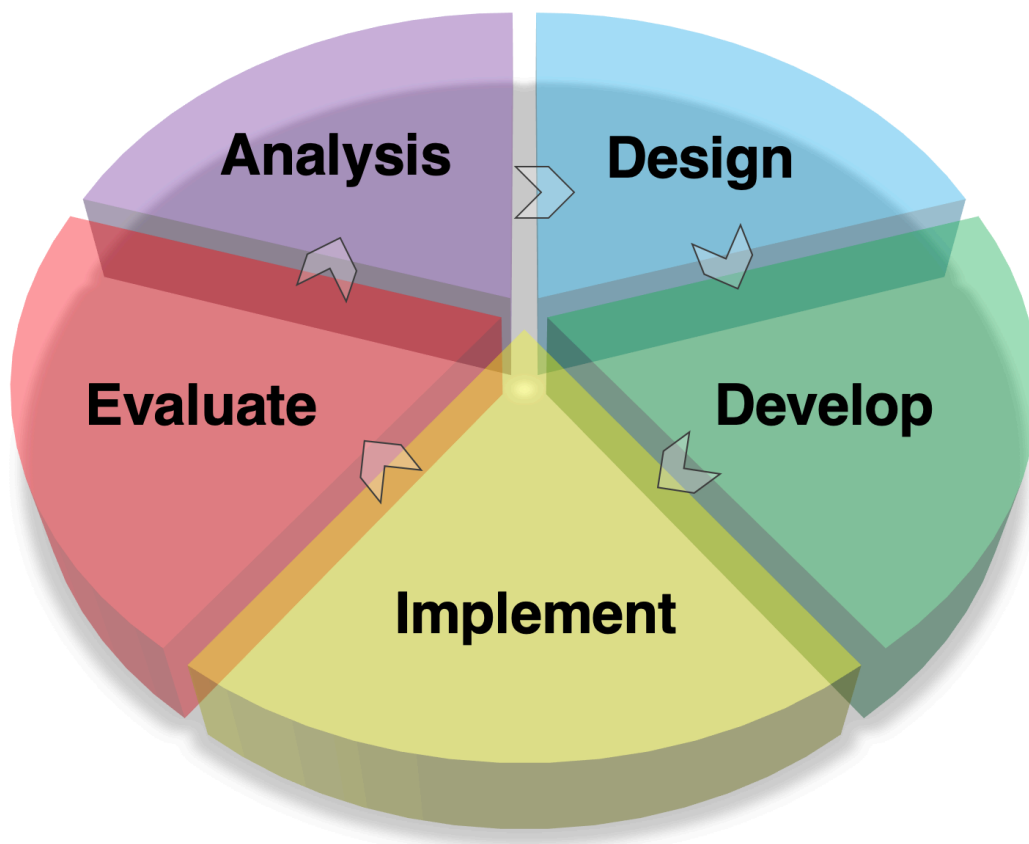

Figure 4. The initial consideration and design for cultural inclusiveness should be integrated into the Analysis phase of the ADDIE process

Similarly, the design for cultural diversity is considered during the analysis of Learner Characteristics phase of Morrison, Ross, and Kemp's instructional design model (Morrison, Ross, Morrison, & Kalman, 2019). During this phase of an instructional design the designer is taking the specific characteristics of their audience into consideration during the formative design of the instructional message.

The design of educational materials is often developed for specific audiences in one country. Ethnocentric instructional design is not suited for all audiences. Researchers determined there was a need to present a framework for instructional design that is culture-neutral for a rehabilitation training program in Haiti by "decreasing cognitive load by removing complex or country specific language, content or examples" (Dunleavy, Audette, Sander, & English, 2015). The redesign was accomplished in three phases. The first phase was an analysis of the learners, tasks, and goals. The second phase involved content reorganization to improve readability and culture specific language. In the third phase further review, formatting, and editing was accomplished.

The conclusion of the study was "global culture-neutral design can be used to facilitate translation and share resources across multiple countries and cultures." The resulting implications were "culture- neutral design or redesign may provide educational materials which are potentially useful for other countries" (Dunleavy, Audette, Sander, & English, 2015).

Issues and Considerations in Multicultural and International Instructional Design

An understanding of how culture has been defined is important to the development of instructional designers (Thomas, Mitchell, & Joseph, 2002). However, Subramony (2004), asserted that "important issues of cultural diversity among learners" have been ignored by mainstream instructional technology research.

Culture is one of the many factors that affect instructional design. Rogers, Graham, and Mayes (2007) posed the following questions about people who are involved in creating online instruction for people of other cultures. "Are they aware of the differences between themselves and the cultural group for whom they are designing instruction? If so, how did they become aware of these
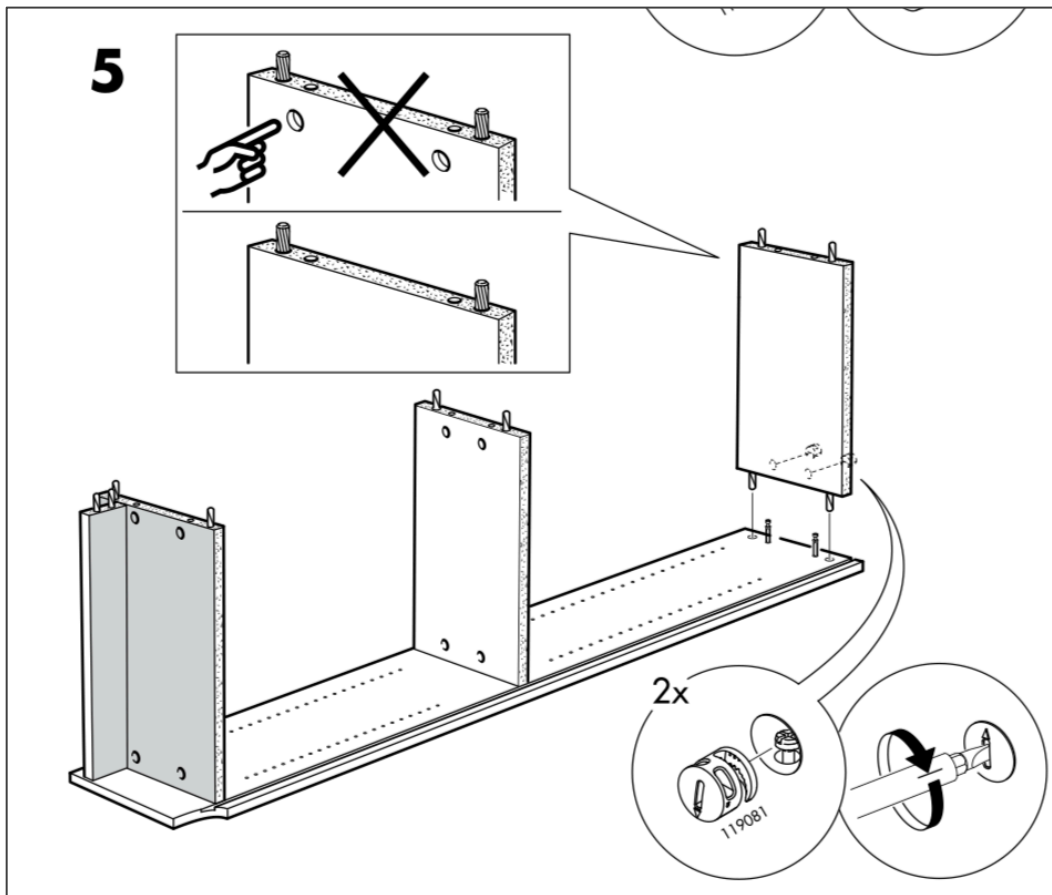
differences? What importance do these differences assume in their thinking? How does understanding cultural differences affect instructional design practice?"

According to Rogers, Graham, and Mayes (2007) three barriers that inhibit designers from being more culturally responsive:

1. An over-emphasis on content development as the center of practice and under emphasis on context, and learner, and the learner's experience.

2. A relative lack of evaluation in real world practice.

3. The creation of less than ideal roles that instructional designers assume in the larger organizational structure.

Instructional designers are instrumental in developing multimedia courseware and material and can be influential in material and symbolic culture (Capuk & Kara, 2015). According to Osguthorpe (2007), "… instructional designers see themselves as those who help others learn" which should include being sensitive to learners' cultural differences, then "they will be ready to contribute more to the development of theory in the discipline" (Osguthorpe, 2007).

To illustrate this point, the furniture and instructional designers at IKEA provide an excellent example of job aids and instructional message designs for international audiences. For instance, while the initial safety warnings appear in 35 languages, the instructional message design of assembly instructions for a common IKEA bookshelf does not include text. Rather, the job aid almost exclusively uses graphics with the intent that these graphics would be universally understood across cultures in international markets (see Figure 5).

Figure 5. Typical furniture assembly instructions from IKEA present an example of simplified yet effective instructional message design intended to be universally understood by international learners through the use of graphics. (© Inter IKEA Systems B.V. 2013)

Training the Trainer

"One of the greatest challenges facing teacher educators is helping future teachers support the learning of our increasingly diverse cultural and linguistic student population who come to school with a range of experiences and abilities." (Boling, 2003). The potential of technology to address the needs of multicultural education continues to grow as technology and online tools are readily available to address the needs and opportunities of multicultural education for teachers. Social network communities are widely popular in

providing opportunities for teacher interaction and collaboration with people from all over the world. Teachers can interact with educators globally and gain cultural insight into societal practices and traditions (Ferdig, Coutts, DiPietro, & Lok, 2007).

There has been an increase in online education in the United States and around the world. Instructional designers have an important role in developing cross-cultural collaborative distance learning frameworks for online instructors. In a study of forty online instructors from two universities in the Northeastern United States consisting of instructors who had taught online/blended courses for at least two years, data was collected through interviews lasting 60 to 90 minutes (Kumi-Yeboah, 2018). Interview questions included cultural responsiveness in online learning and instructional strategies used to facilitate collaborative online learning and activities. The findings revealed that 34 of the 40 participants used computer-supported collaborative learning strategies to aid in interaction with instructors and peers. Other instructors supported using wikis and blogs and other online activities such as social interactions, Google Docs, and GoToMeeting tools. Thirty-two of the participants expressed challenges with cross-cultural learning for students. The participants also expressed that infusion of diverse content and knowledge is not enough to promote diverse students' participation. Instructors also expressed problems with language barriers (Kumi-Yeboah, 2018).

Instructional Message Design for Cultural Inclusiveness

Multicultural curricula design should include the objectives, content, learning situations, and the measurement and evaluation process of curriculum design (Demir & Yurdakul, 2015). Guidelines for effective cross culture design include (Morrison, Ross, Morrison, Kemp, 2019):

- Demonstrate an inclusive mindset; a desire to be genuinely inclusive in message design

- Try to design in a way that reaches all learners

- Engage learners and tie learning objectives to real-world examples that they are familiar with

- Relate learning to cultural contexts

- Encourage team projects with diverse inclusion of learning

- Keep potential language barriers in mind, by including opportunity for praising, modeling, restating, clarifying, and questioning.

Collins (1997) as cited in (Chen, Mashhadi, Ang, & Harkrider, 1999) the interface designer of web-based instruction should be aware of the following when designing for different cultures:

- Response to issues of layout of the graphical interface

- Images

- Color

- Sound

There is a lot to consider in the design of multicultural learning. "New theories can emerge not only from theoreticians but from practitioners themselves" (Osguthorpe, 2007). Existing technology is more advanced and available to a growing global population of learners and a growing number of different devices. Message design principles differ for different devices. The following are suggestions for message design for different devices:

- Design for e-learning, adapt for m-learning (mobile learning)

- Design short and condensed materials for smart phones.

- Students prefer video-based mLearning materials and should be less than 5 minutes (Wang & Shen, 2012).

Conclusion

The cultural aspects of instructional message design have a significant influence on the approach to planning, designing and implementation of the instructional technology used to train global cultures domestically and internationally. The current and projected rise in population growth of individuals and families from countries outside of the United States changes the demographics of communities and schools and requires a paradigm shift in education reform that is more inclusive and less resistant to change. Educators and institutions will depend on the knowledge, skills and abilities of instructional designers, who are tasked with using existing and future technologies to meet the educational needs of a global society that has now become technology dependent. It is also important to note that care must be taken to avoid design stereotyping and to include cultural subject matter experts during formative design evaluation. This instructional message design consideration is especially true as universities develop online courseware for international markets. As technology expands the ability of instructional designers to produce learning material to reach more learners domestically and in other countries, the considerations for cultural diversity have to be included in the instructional message design process.

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