

**Canadian Journal of Learning and Technology / La
revue canadienne de l'apprentissage et de la
technologie, V35(1) Winter / hiver, 2009**

**Monkeys on the Screen?: Multicultural Issues in Instructional
Message Design**

Debbie McAnany

Author

Debbie McAnany is an outreach coordinator in the Faculty of Computer Science, University of New Brunswick. Correspondence regarding this article can be sent to: mcanany@unb.ca

Abstract: With the shift in numbers between Canadian-born students in the university classroom and the increased number of international students, it is a primary concern for instructors and instructional designers to know and understand learner characteristics in order to create effective instructional messages and materials. Recognizing how culture might shape cognition and learning, we can value and design for the diversity of students and maximize their learning while improving the learning environment for all students.

To celebrate cultural diversity and meet the challenges associated with designing for diverse learning styles and educational experiences, this paper offers a review of the literature and proposes a systematic three-fold approach to the creation and evaluation of multicultural instructional messages and materials: first, "*Do no harm*"; second, "*Make the learning experience relevant*"; and third, "*Incorporate global concepts and images into instructional messages*."

Des singes à l'écran? Considérations multiculturelles dans la conception de messages pédagogiques

Résumé : Avec le renversement des proportions d'étudiants nés au Canada et d'étudiants internationaux qui sont de plus en plus nombreux dans nos universités, connaître et comprendre les caractéristiques des apprenants constitue maintenant une préoccupation majeure pour les instructeurs et les concepteurs pédagogiques afin de créer des messages et du matériel pédagogiques efficaces. En prenant en considération la façon dont la culture peut influencer la cognition et l'apprentissage, nous pouvons tenir compte de la diversité des étudiants lors de la conception et ainsi maximiser leur apprentissage tout en améliorant l'environnement d'apprentissage pour tous les étudiants. Dans le but de célébrer la diversité culturelle tout en relevant les défis associés à la conception pour divers styles d'apprentissage et d'expériences éducatives, le présent article présente un examen de la documentation et propose une approche systématique en trois volets

pour la création et l'évaluation de messages et de matériel pédagogiques : premièrement, « ne pas nuire »; deuxièmement, « connaître l'apprenant »; et troisièmement, « incorporer des concepts et des images universels dans les messages pédagogiques ».

Culture can be broadly defined as "the beliefs, philosophy, observed traditions, values, perceptions, and patterns of action by individuals and groups" (Chen, Mashhadi, Ang, & Harkrider, 1999, p. 219). Since, as Vygotsky has shown, "[c]oncepts exist within a web of meaning which is mediated by individuals' cultures" (Chen et al., 1999, p. 221), attention to cultural issues is a significant factor in determining the effectiveness of instructional materials. However, although culture may profoundly overtake the learner's relationship with learning materials, Subramony (2004) asserts that "the mainstream instructional technology (IT) research and development community is continuing to ignore important issues of cultural diversity among learners" (p. 19). Many training programs, for example, are shaped by North American beliefs, such as self-reliance, optimism about the future, positive attitudes toward change, faith in science, democracy, religion, pragmatism, and attitudes toward supervision and responsibility (Geber, 1989). As well, we tend to see visual representations of cultural stereotypes "as part of the natural order of public perception and common knowledge" (LaSpina, 1998, p. 177). Often, current designs tend to reflect a lack of cultural awareness. As learning scientist Schwen points out, designers (including himself) are often ignorant of hidden assumptions and strong cultural values that accompany their work and consequently fail to take on the social responsibility of making this more evident to their intended audience (cited in Subramony, 2004).

In this paper, I synthesize the ongoing conversation on multiculturalism and instructional message design in the context of three principles. First, "do no harm"; that is, ensure that the instructional message does not include anything which might evoke an emotional response or otherwise offend people of a different culture. Second, "know your learner" to ensure the relevance of the instructional messages, which entails utilizing diverse representations or, where possible, designing for a specific culture. Third, incorporate global concepts and images to educate and broaden the world view of all learners. My particular focus is on post-secondary education, which is being challenged to reflect the experiences, voices, and struggles of people of diverse cultural groups (Banks, 1993). Designing for cultural diversity is a relevant consideration for instructional messages at all levels of education and training.

However, before proceeding with a survey of the literature, I will elaborate upon the benefits of a multicultural approach to instructional message design.

The Benefits of Integrating Multiculturalism into Instructional Messages

The importance of integrating a (multi)cultural perspective into education and by association into instructional materials, is affirmed by Chen et al. (1999), who state that doing so "leads researchers and teachers to a deeper and more valid

understanding of the nature of student learning" (p. 219). In addition, making instructional messages and materials more culturally sensitive tends to create a better learning environment for all students. According to Thomas, Mitchell, and Joseph (2002), the consequences of not directly addressing culture in the design of instruction include "the production of ineffective instructional products, the under-use of potentially effective products, culturally insensitive products, and products that are deemed overtly culturally offensive by some members of certain populations" (p. 40). When instruction is designed without cultural considerations, the risk is that learning will be compromised because, as Blunt (2006) notes, "those of other cultures may have non-traditional and specific ways of responding to learning according to their own traditional and cultural understanding" (p. 7).

Conversely, giving students more choices (compatible with their cultural style) about how they will learn leads to educational equity and excellence which "encompasses cognitive, affective and behavioral skills, as well as the principles of democracy" (Gay, 1994). Furthermore, the evidence suggests that using cognitive frameworks, such as styles of information processing and content materials familiar to culturally different students, improves learning (Gay, 1994). Gay (1994) argues that multicultural education creates a psychosocial state of readiness in individuals and learning environments, which has a positive effect upon academic efforts and task mastery. And McLoughlin (2000) suggests that "The rationale for considering culture as a dimension of effective WWW instruction is simple: it enables learners to develop a cognitive anchor for new knowledge and enables them to relate and integrate new concepts within a coherent perspective that recognizes diversity" (p. 239).

Despite the apparent connection between attention to multicultural issues and improved learning, developing instructional materials that recognize, respect, and adapt to learners' cultural characteristics remains a great challenge (Frascara, 2000). Sieffert (2006) points out that "[c]ulture cannot be systematically programmed into materials" (p. 7). A key problem is identifying relevant cultural attributes of learners given the lack of adequate research on the topic. Murrell (1998) suggests "that the design team and the testing sample be made up of as culturally diverse groups as are likely to use the programme." Murrell's suggestion is an ideal which may not always be practical, but in a school setting much can be achieved by considering each member of the school community as a potential source of ideas on multicultural topics and content (Huang, 2002). In general, comprehensive materials, with the application of cognitive principles for easy identification of content components without requiring additional direction, would help serve the needs of all learners. Students need to be able to identify with the curriculum and understand the content from their cultural perspective:

For educators, this means accepting as valid the culturally different learners' values, their motives, the rewards that are meaningful to them, their locus of control, their linguistic system, their learning style, and their cognitive style. . . cultural sensitivity means prizing this diversity and seeing it as a true asset to meaningful and effective

instruction. (Powell, 1997, p. 14)

First Principle: "Do No Harm"

The "do no harm" principle cautions against creating instructional messages, including phrases or images, that may evoke an unwanted emotional response in people of different cultures, which in turn may impede their learning. Spinillo (2002) reports on the results of a study in which pictorial messages provoked negative emotional responses from the intended audience when they were not in agreement with the readers' cultural customs. For example, Messaris (1995) cites a 1988 study in which Chinese and American students were shown a picture of a man in a business suit eating breakfast next to a window with a view of a large city. American respondents "readily identified the image's implications of wealth and power," but Chinese respondents "focused instead on the reasons why a middle-aged man would be having breakfast alone, without his family" (p. 51). We know that adults' learning is impeded when they are overtaken by emotion (MacKeracher, 2004); therefore, choosing culturally appropriate pictorials for the audience is crucial to the success of the instructional message.

The "do no harm" principle includes many practical guidelines, such as refraining from using graphic representations of animals or alcohol as feedback responses in textbooks, worksheets, or human-computer interfaces. The popping of a champagne bottle (Murrell, 1998), as well as the personification of animals (Dyjur, 2004), may offend those of Muslim faith. The presentation of a monkey on the screen (Murrell, 1998) and the use of icons representing heads and hands (Dyjur, 2004) should be avoided, as these are taboo images for some African cultures. Military metaphors and images are not appropriate in many countries. In the United Kingdom, it is preferable to avoid American busses in images, as England has red double-deckers; as for American mailboxes, they look like English trash cans. In fact, in the current climate of ambiguous American sentiment, Sakurai (2002) cautions against the use of all U.S. iconography (e.g., Uncle Sam, stars and stripes). Sinagatullin (2003) recommends avoiding the use of omens of bad luck to prevent frustrations and psychological imbalance in the learner; for example, the Chinese tend to shun the number four, as do Malaysians. According to McWhinnie (1999), the number four is unlucky because the word sounds the same as the word for death. Terms such as "Fatal error", "Illegal procedure", and "Process aborted," used as online error messages, could also lead to negative responses, as they are occasionally offensive to people of different cultures (Murrell, 1998).

According to Griffin, Pettersson, Semali, and Takakuwa (1995), even simple symbols may be incomprehensible, or have very divergent meanings in different cultural contexts. Their study, conducted with subjects in the United States, Sweden, Tanzania, and Japan, found that "there are strong cultural differences in interpreting the meanings of symbols" (p.187). For example, a star will be seen as a bang or explosion in Sweden and as a sea urchin in Japan. Similarly, while an owl represents wisdom in western culture, it can represent brutality and stupidity in parts of Asia (Lohr, 2003). A "thumbs-up" sign has negative connotations in Brazil,

while the same is true for pointing fingers in Egypt and a piggy bank in the Middle East. Consider also the swastika, which has very positive connotations for Indians, and different connotations for those of European and North American descent. The use of a question mark in computer software to signify the "help" feature "will not aid a student in a culture that does not use question marks" (Sieffert, 2006, p. 7).



The same is true for the use of a lowercase 'i' in a symbol, which is not understood to represent "information" in non-English speaking countries (Griffin et al., 1995). Murrell (1998) emphasizes that "[g]raphic and iconic representations are not universally understood, they are culturally learnt." This point is illustrated by Andrews (1994), who points out that, to an illiterate Zulu-speaking person, the no



smoking sign can be understood to mean "you can smoke half a cigarette," while the emergency exit sign is interpreted as meaning "don't run that way or you will get head, hands and feet chopped off." Murrell (1998) also tells us that the "skull and bones" symbol that typically represents danger is misunderstood by many South Africans, both literate and illiterate. Murrell further suggests not using arrows to indicate direction in a static graphic because they are not a universal symbol of direction.

Given the strong cultural differences in interpreting the meanings of symbols, Griffin et al. (1995) caution against using symbols, especially abstract symbols, and propose that, if you must use symbols, use those designed for the culture and consider using verbal or pictorial as opposed to abstract symbols. Armory and Mars (1994) further suggest that all graphic and icon symbolization be labeled. This might prove especially useful in pictorial sequences, which might be misread by those unaccustomed to sequential images as representing simultaneous events (Linney, 1995).

A less obvious characteristic of an image that may be offensive to some is colour, which may have surprising cultural connotations. For example, in South Africa, designers using a graphic of a snake swallowing a man found that, "[t]he colour of the snake had to be green as this made it an ancestral snake therefore acceptable and humorous as feedback. A brown snake swallowing a man would not be amusing at all" (Andrews, 1994, p. 11). While we may use red to signify danger, in Malaysia, according to McWhinnie (1999), red is used to signify money. Sinagutullin (2003) reports that the Chinese tend to associate the color red with bad luck in certain contexts. He claims that teachers, for this reason, do not use red ink when making corrections in students' exercise books. Similarly, white symbolizes purity and truth in our culture but is associated with death and mourning in Asian cultures and is believed to bring bad luck if worn at a wedding in India (Sinagutullin, 2003). In Malaysia, a considerable amount of superstition and unease surrounds the wearing of the colour black. If, as McWhinnie (1999) reports, wearing black (from head to foot) can bring a college management meeting in Malaysia to an abrupt end, imagine the effect it would have on learning!

Given the overwhelming amount of information about cultural differences in the interpretation of simple images and colours, Bentley, Tinney, and Chia (2004) recommend that the best way to adhere to the "do no harm" principle is to:

Explicitly describe the educational values embedded in your course design and in your examples and strategies. Include these values in both the syllabus and course description to alert potential students of the course orientation ...learners can then choose courses that match their educational values for a more comfortable learning experience or know that choosing classes which do not match their educational values will require that they learn in new ways. (pp. 66-67)

Second Principle: "Know Your Learner"

In web-based instruction, the concept of culturally appropriate design presents a myriad of issues. Stoney and Wild (1998), point out that the interface designer must be aware of how different cultures will respond to the layout of the graphical interface, images, symbols, colour, and sound, inferring that we cannot simply add culture (into a course) and stir. In other words, it is necessary to reflect thoughtfulness on our image and color choices, and also to obtain a clear conception of the target audience who will be receiving the message because the nature of the message received is determined by the significant role of their cultural context, expectations, and experiences.

Ensuring the relevance of the instructional message is especially important because learners might otherwise dismiss the instructional materials as not applicable. Spinillo (2002) feels that it is part of the designer's social responsibility to make decisions about cultural, racial, and gender aspects of the pictorial representation which may affect the learners' acceptance of such representations. That being said, we have seen, in the previous section, how onerous a task choosing a simple image for an instructional message can become.

International learners may face socio-economic and educational challenges, which are magnified by the negative consequences of neglecting or ignoring their cultural characteristics in the learning provided. Minority learners endure inadequate and inequitable access to technological resources, suffer language barriers to both the English-language and to technology-related terminology, and may be deprived of mentors or role-models to exemplify technology use. Then, "when we add inappropriate or insensitive instructional solutions to the above mix, it leads to a further alienation from technology of the very learners who are the [sic] already the most disempowered technologically, and who could most benefit from the emancipatory potential of technology. This sets in motion a vicious cycle . . ." (Subramony, 2004, p. 22).

Students may feel more connected when individuals of their cultural backgrounds are visible in the course materials. For this reason, McLoughlin (2000) suggests integrating indigenous art forms and colour into online instruction for indigenous

Australian learners who are preparing to enter university. Furthermore, she advocates that "Multiple perspectives can be achieved by reducing teacher directed, transmissive pedagogies in favour of student centred practices" (p. 235). One idea she proposes for a Web environment is to have the learners actively participate in the creation of a community database of online resources. McLoughlin (2000) affirms that "Indigenous learners need to have community input and perspectives in the design of the learning environment" (p. 235). Ladson-Billings (1990) goes so far as to say that multicultural lesson design should include primary documents written by individuals who have lived with oppression and discrimination to expand upon the traditional textbooks written from a single perspective. A diverse selection of documents from multiple perspectives may reduce the likelihood that stereotypes will be perpetuated, as often happens in popular culture and mass media--and even in instructional materials that purport to break with stereotypes (Ravitch, 2004).

According to Gay (1994), students may internalize the negative and distorted conceptions of their own and other ethnic groups. Multicultural education and instructional message design must therefore be held accountable for stereotypes and ethical and racial myths that might permeate our educational system. Seiffert (2006) cautions that "[t]okenism should also be avoided in materials" (p. 5), and Henderson (1996) advocates that "[i]nstructional design of IMM materials needs to empower, extend, and enrich the students' culturally specific knowledge and ways of thinking and achieve a nexus between these and the demands of the required academic culture" (p. 93). The aim is equitable outcomes for all.

To develop those equitable outcomes, we need more knowledge than just the correct cultural interpretations of symbols and images and the appropriate use of colour. It is also necessary to gain an appreciation of the values of the learners as well as their philosophical approach to life and learning. The difficulty is that, as we begin to explore the nature of cultural difference, we will fall into the trap of "essentializing culture and ethnic identities" (Hendricks, n.d.). Sensitive to the risk of over generalizing, Chen et al. (1999), highlight the fundamental differences between "Eastern" and "Western" cultures:

Eastern culture's sense of reality, in many manifestations seems to be holistic, a view that takes into consideration the interdependent relationship of living things and the environment, the natural and human elements, and their mutual shaping in the construction of meaning. (p. 220)

In contrast, the "general tendency of Western culture [is] to value individualism, personal achievement, independence, human interactions that are functionally based and specialized, inalienable rights, and an emphasis on time and space systems..." (Williams-Green, Holmes, & Sherman, 1997, p.5). Powell (1997) adds that Western education tends to favor abstract, conceptual thought.

These differences would impact the design and administration of learning activities,

such as the choice between group work and individual effort (sanctioned or not) and the tolerance for late assignments. Consider the example of an educational game, in which the learners are made to compete against each other. As Powell (1997) points out, "[i]t may not occur to you that in some cultures, looking better or worse than one's peers is frowned upon, especially between persons of different social strata or between males and females" (p. 12). Similarly, while Western cultures tend to value one-on-one attention and personalized feedback, the same may not be true of Eastern cultures. McWhinnie (1999) recounts how, while teaching in Malaysia, she learned not to draw attention to a student she felt might not be understanding a specific concept as it would cause "loss of face" for the student, a situation that culturally would be perceived as a public humiliation.

Another key cultural distinction made by Bentley et al. (2004) is between high and low context. Based on the multiple traits that identify high and low context cultures, the authors have categorized certain cultures. Japanese, Chinese, Korean, Latin American, Mediterranean, Middle Eastern, French, and Vietnamese cultures fall within the high-context, circular thinking model of group-oriented cultures. Canada, the United States, and northern European nations are classified as low-context cultures, in which people tend to be more concerned with the clarity of the message than with the social niceties of its delivery (Gundling, 1999). Given that Canada and the U.S. are culturally diverse societies, it makes sense to heed Smith & Ayers (2006) who caution that, "although descendants of peoples indigenous to Africa, the Americas and Europe grow up within close physical proximity of one another, the cultural perspectives and corresponding learning styles can differ significantly" (p. 405). Based on their research, Bentley et al. (2004) make several recommendations, including an emphasis on the importance of explicitly describing the educational values embedded in course design, examples, and strategies, and to take steps to avoid slang, colloquialisms, and local humour that can disrupt learning.

Third Principle: "Incorporate Global Concepts"

The third principle emphasizes the importance of incorporating global concepts and images in instructional messages to educate and broaden the world view of all learners. For example, Sinagatullin (2003) suggests that instructors infuse social studies instruction with references to world-wide historical events, movie stars, singers, musicians, dancers, and sports figures from around the world, as well as the seven wonders of the ancient world and the seven wonders of the modern world. Similar content might be incorporated into instructional messages in other subject areas. For example, in Computer Science, people, events, or structures from around the world—instead of generic people and places--could be incorporated into the narratives of problem solving exercises. Incorporating references and images from around the world may help to broaden the world view and cross-cultural understanding of all students. Through exposure to the stories and people of other cultures, students may come to understand not only the differences among cultures, but their "sameness," as well (Huang, 2002).

Deconstruction of a Computer Science Assignment

In this section, I will briefly illustrate the application of these three principles to the redesign of the following instructional message given to first-year university computer science students:

Given an integer value *day* (a value from 1 - 12), show the Java code to print the appropriate verse from *The Twelve Days of Christmas*. For example, if *day* = 12, the code should print (italics not required):

On the twelfth day of Christmas, my true love gave to me:
Twelve drummers drumming
Eleven pipers piping
Ten lords a-leaping
Nine ladies dancing
Eight maids a-milking
Seven swans a-swimming
Six geese a-laying
Five golden rings
Four calling birds
Three french hens
Two turtle doves
A partridge in a pear tree.

Hint: Use one section of code to determine the number of the day in the first line (for example: first, second, ... twelfth), and a separate section to print the rest of the lines in the verse. You may want to copy and paste the lines from here rather than retyping them. Your program should not include more than one copy of each line.

Applying the three principles advocated for instructional message design to this computer science problem statement, we can find many suggestions for improvements to better serve the multicultural learner. Clearly, the major problem with this assignment question is that it refers to a holiday and song particular to Western culture. Assumptions have been made that all learners will be familiar with the song and its structure, assumptions that disenfranchise students from different cultural backgrounds. Furthermore, some of the images the words portray in the verse might seem odd (or maybe even offensive) to some students, with the result that the intended purpose and hence the relevance of such an exercise would be lost. This problem might be intentionally used to introduce multicultural students to Western traditions, but more detail would then be needed. An introduction to the holiday of Christmas and the custom of carol singing along with a complete and explicit explanation of how this song works would be required. Once the concept of how the Java code relates to the song is understood, part B of the assignment question could ask the students to generate a song from their own cultural background using similar Java code. Deconstruction of instructional messages, such as this, may benefit students studying in all disciplines.

Deconstruction of a Nursing Assignment

The following Nursing assignment deals specifically with effective dialogue.

Helping Relationships Lab

Nursing – 4th year clinical

If the helping relationship is a partnership, then the interaction between client and helper needs to be a dialogue—a solution-focused, helping, and therapeutic dialogue. Helpers need the communication skills that contribute to effective dialogue for two reasons.

- First, they need the skills to actively engage their clients in the give-and-take of the therapeutic dialogue.
- Second, since many clients are not good at dialogue, helpers need these communication skills to help clients whose communication skills are weak to participate actively in the dialogue.

Effective dialogue has four characteristics:

1. **Turn taking.** Effective communicators do not engage in monologues. Nor do they sit idly by while their partners engage in monologues. I speak, you speak.
2. **Connecting.** Effective communicators avoid intersecting monologues. They connect. What I say responds to what you have said. And I expect you to do the same. Effective dialogue is organic in nature.
3. **Mutual influencing.** The participants in effective dialogue influence each other. I am open to being influenced by what you say to me and I expect that you will return the favor.
4. **Co-creating outcomes.** By engaging in steps 1, 2, and 3, effective communicators end up co-creating the outcomes of the conversation. As a counselor, I don't tell my clients what to do, but I do provide guidance for their journey.

Analyze the following dialogue based on the four given characteristics of effective dialogue. Identify where and how the characteristics have been implemented. Also, identify where and how the characteristics could have been implemented more effectively.

Dialogue

.....

This instructional message appears to be based on the assumption that all the characteristics of effective dialogue are easy to implement for all students, once students are told what those characteristics are. However, students with different

cultural backgrounds may find it difficult to execute the dialogue as directed. If the student feels he/she should take charge of this process and belongs to a highly authoritative culture, turn-taking, mutual influencing and co-creating outcomes might be a problem. It would be difficult for the student not just to tell the client what they should do. For low-context individuals connecting with the client might have little value and be viewed as time-consuming and hence, they may miss the opportunity to be influenced by the client. However, for students from high-context cultures, while turn-taking might be acceptable because time is not an issue and connecting might come naturally because they believe in strong people bonds, eye contact could be an issue. Furthermore, embedded in the characteristic of turn taking is the cultural assumption that both parties in the dialogue view each other as equals. In a culture where status in society is highly-valued and the client holds a higher position in society than the student acting as a counselor, turn taking will require a complete cultural shift. In some cultures, gender may also be an issue: males may be uncomfortable taking advice or even speaking to females.

A more effective assignment would be to have the students role play, given a scenario and the following additional directives.

- Take your time. The best results are attained when taking your time, don't seem impatient.
- The ultimate determination of the success of the dialogue is how the client feels in the end.
- Eye contact is necessary to establish rapport with the client.
- This person is here for your help, it doesn't matter what they do on the outside, you have the expertise here and you are working as a team. Contributions from both parties are necessary to achieve the desired results.
- Good listening is important in between taking turns talking.
- Keep an open mind.
- Feel free to take some time to get to know the client.
- There is never a need to raise your voice.

The outcomes of this assignment must still be attained, but the instructional message can be designed in order to accommodate diverse cultural orientations and with consideration of the cultures in which students will be practicing these skills when they leave school.

Conclusion

The aim of multicultural instructional message design is to create material that does not disrupt or distract from the learning outcomes because of unintended offense, that is relevant to all learners, that is sensitive to their cultural values, and that will broaden their horizons and world views. The benefits are far-reaching for both the designer and the student, and we must recognize that there are many facets to the instructional messages that we design, and they must all be considered. As a result, designing culturally sensitive material is not a simple matter: an instructional designer or educator can unintentionally create something that is culturally

inappropriate for some of the learners.

Further research is needed to develop new conceptual tools and procedures for creating culturally sensitive instruction and ensuring student learning. More research is also needed to discover how and what visual symbols communicate to diverse learners and what instructional strategies and media best suit the cultural attributes of learners "The challenge is to tease out those elements of culture that can make a difference when making instructional design decisions" (Williams et al., 1997, p. 16). In the meantime, to prevent inadvertent cultural insensitivities in instruction, all advice points to following the three principles outlined in this paper: "Do no harm," "Know your learner," and "Incorporate global concepts."

References

Andrews, S.J. (1994). Some cultural and perceptual implications of courseware development and the use of technology within a multicultural, multilingual society (a cautionary tale). In Alexander, P.M.(Ed.), *Papers delivered at the international conference on computer-assisted education and training in developing countries* (pp. 7-13). Muckleneuk, Pretoria: University of South Africa.

Armory, A., & Mars, M. (1994). Evaluation of efficacy of multimedia learning project development and strategies. In Alexander, P.M.(Ed.), *Papers delivered at the international conference on computer-assisted education and training in developing countries* (pp. 1-6). Muckleneuk, Pretoria: University of South Africa.

Banks, J.A. (1993). Approaches to multicultural curriculum reform. In J.A. Banks & C.A. Banks (Eds.), *Multicultural education: Issues and perspectives* (2nd ed., pp. 195-214). Boston: Allyn & Bacon.

Bentley, J.P.H., Tinney, M.V., & Chia, B.H. (2004). Intercultural internet-based learning: Know your audience and what they value. *Association for Educational Communications and Technology*, 27th, 61-69. Retrieved November 11, 2006 from Eric - EBSCO database.

Blunt, D.R. (2006). The effects of multiculturalism within the parameters of instructional course design, 1-33. (ERIC Document Reproduction Service No. ED 490 178)

Chen, A., Mashhadi, A., Ang, D., & Harkrider, N. (1999). Cultural issues in the design of technology-enhanced learning systems. *British Journal of Educational Technology*, 30(3), 217-230.

Dyjur, P. (2004). Inclusive practices in instructional design. Retrieved October 2, 2006 from <http://www.usask.ca/education/coursework/802papers/dyjur/index.htm>

Frascara, J. (2000). Information design and cultural difference. *Information Design Journal*, 9 (2/3), 119-127.

Gay, G. (1994). A synthesis of scholarship in multicultural education. Retrieved October 2, 2006 from <http://www.ncrel.org/sdrs/areas/issues/educatrs/leadrshp/le0gay.htm>

Geber, B. (1989). A global approach to training. *Training*, 26(9), 42-47.

Griffin, R.E., Pettersson, R., Semali, L., & Takakuwa, Y. (1995). Using symbols in international business presentations: How well are they understood? In Beauchamp, D.G., Roberts, A.B. & Griffin, R.E. (Eds.), *Imagery and visual literacy: selected readings* (pp. 182-189). Loretto, PA: International Visual Literacy Association.

Gundling, E. (1999, June). How to communicate globally. *Training & Development*, 28-31.

Henderson, L. (1996). Instructional design of interactive multimedia: A cultural critique. *Educational Technology Research & Development*, 44(4), 85-104.

Hendricks, F. (n.d.). Africa multiculturalism – Multiculturalism and culture. Retrieved May 29, 2008 from <http://science.jrank.org/pages/10322/Multiculturalism-Africa-Multiculturalism-Culture.html>.

Huang, H. (2002). Designing multicultural lesson plans. *Multicultural Perspectives*, 4(4), 17-23.

Ladson-Billings, G. (1990). Like lightning in a bottle: Attempting to capture the pedagogical excellence of successful teachers of black students. *International Journal of Qualitative Studies in Education*, 3(4), 335-344.

LaSpina, J.A. (1998). *The visual turn and the transformation of the textbook*. Mahwah, NJ: Lawrence Erlbaum.

Linney, B. (1995). *Pictures, people and power: People-centred visual aids for development*. London: Macmillan Education Ltd.

Lohr, L.L. (2003). *Creating graphics for learning and performance*. Columbus, Ohio: Merrill Prentice Hall.

MacKeracher, D. (2004). *Making sense of adult learning* (2nd ed.). Toronto: University of Toronto Press.

McLoughlin, C. (2000). Cultural maintenance, ownership, and multiple perspectives: features of Web-based delivery to promote equity. *Journal of Educational Media*, 25(3), 229-241.

McWhinnie, L. (1999). A British graphic designer teaching and learning in South-East Asia, 1-6. *Proceedings from the InSEA 30th World Congress "Cultures and*

Transitions". (ERIC Document Reproduction Service No. ED 452 105)

Messaris, P. (1995). Visual literacy and visual culture. In Darrell G. Beauchamp, Roberts A. Braden, & Robert E. Griffin (Eds.), *Imagery and visual literacy: Selected readings* (pp. 51-56) . Loretto, PA: International Visual Literacy Association.

Murrell, K.A. (1998). Human computer interface design in a multi-cultural multi-lingual environment. Retrieved October 17, 2006 from <http://www.und.ac.za/users/murrell/classrm/paper1.html>

Powell, G.C. (1997). On being a culturally sensitive instructional designer and educator. *Educational Technology*, 37(2), 6-14.

Ravitch, D. (2004). *The language police: How pressure groups restrict what students learn*. New York: Vintage Books.

Sakurai, J.M. (2002). Foreign faux pas: Culture - the final barrier to going global. *E-Learning*, 3(7), 26-30. Retrieved November 11, 2006 from <http://www.elearningmag.com>

Sieffert, S. (2006). Placing culture at the forefront, 1-13. Retrieved November 10, 2006 from <http://www.usask.ca/education/coursework/802papers/seiffert/seiffert.pdf>

Sinagatullin, I.M. (2003). *Constructing multicultural education in a diverse society*. Maryland: The Scarecrow Press, Inc.

Smith, D.R. & Ayers, D.F. (2006). Culturally responsive pedagogy and online learning: Implications for the globalized community college. *Community College Journal of Research and Practice*, 30, 401-415.

Spinillo, C.G. (2002). Are visual instructions successful messages? Some considerations in the analysis of procedural pictorial sequences. In Robert E. Griffin, Jung Lee, & Vicki S. Williams (Eds.) *Visual literacy in message design: selected readings* (pp. 1-10). Loretto, PA: International Visual Literacy Association.

Stoney, S., & Wild, M. (1998). Accommodating cultural differences in web-based instruction. *Proceedings of the ICCE '98*, 1, 184-187.

Subramony, D.P. (2004). Instructional technologists' inattention to issues of cultural diversity among learners. *Educational Technology*, 44(4), 19-24.

Thomas, M., Mitchell, M., & Joseph, R. (2002). The third dimension of ADDIE: A cultural embrace. *TechTrends*, 46(2), 40-45.

Williams-Green, J., Holmes, G., & Sherman, T.M. (1997). Culture as a decision variable for designing computer software. *Journal of Educational Technology*, 26 (1), 3-18.