

## Preface

Information and communication technologies (ICTs) saturate the daily lives of most human beings on Earth. Those in technologically advanced societies live with computers, radios, televisions, print technology, and so forth. As of 2008, one and a half billion people access the Internet (Internet World Stats, 2008). Video games have captured the attention of youth and adults, with sales expected to reach US \$48.9 billion worldwide by 2011 (Scanlon, 2007). Employers are developing serious online games to train, recruit, and better communicate with employees (McConnon, 2007). In 2008, sales in mobile phones worldwide surpassed the US \$1 billion mark because of industry expansions in untapped emerging markets (Gartner, Inc., 2008). College and university students access knowledge through distance education; this continues to be a high-growth area for education and training (Waits & Lewis, 2003). E-learning has exploded across industry, government, business, and education. The need to know, retrain, and acquire knowledge is at an all-time high. These statistics and facts define the growth and impact of ICTs on the global imprint of humanity, but how can technology serve the needs of many while serving the needs of a few? Here are several true scenarios where the needs of a few specialized target audiences have been considered.

Elsa Evers wanted a dual undergraduate degree in communication (i.e., media production) and international studies. As part of her studies, she spent her fourth academic year in Xalapa, Mexico, where she took the remainder of her courses through distance education; in this situation, Elsa would access course content at a place and time of her choosing. Elsa welcomed the opportunity to explore another culture that differed from her own. She immersed herself in the Spanish language, focused on understanding the lifestyle, and reflected on her own cultural predispositions and their influence on her experience (Bhandari, 2007). Elsa is embarking upon an enriching international relations learning experience that is culture-specific.

China and India are experiencing a surge in the video game industry. Game developers from North America want in on these international markets, realizing that games are a culture within themselves. The dilemma for North American video game companies is how to make games culture-specific (Vlessing, 2008).

In Illinois and Pennsylvania, researchers developed computer-mediated mathematics games that focused on the culturally relevant learning and the ethnic histories of their student populations. These educational games served as interventions to help improve the academic achievement of African American students and better meet mainstream educational standards. These are cases in which culture-specific design was implemented out of desperation and disappointment with mainstream educational practices (Gilbert et al., 2008; Leonard, Davis, & Sidler, 2005).

E-learning broadly serves many masters from telecommunications to the Internet. In pockets of the world, the potential of mobile e-learning is being explored with handheld devices such as mobile phones, personal digital assistants, and pocket personal computers. The digitization of Maori, an indigenous language of New Zealand, is being explored by university students through media players that run podcasts (Tahana, 2008). Innovators in Tokyo, Japan explore text messaging with cell phones that have the same writing system in the native tongues of Bengali, Myanmar, and Nepalese (Shimbun, 2008). In these cases, e-learning is made more culture-specific through a focus language.

In Uganda, Deogracious Kiganira Kijambu, a 23-year-old entrepreneur wants to access the Internet in his native language—Lusoga. Accessing the Internet in his own language would help him grow his e-commerce agribusiness and it would enable other Bantu speakers of Lusoga to participate in information and communication features of the Internet. Kijambu knows that there are few people, in the Mayuge district, who have acquired computer knowledge and skills; however, those few cannot access the Internet because of the dominance of English. Speakers of Lusoga are the customers for Kijambu's business. The localization of the Lusoga language is needed in terms of computer user interface, content, language, and other cultural design preferences (Musinguzi, 2008).

These examples demonstrate scenarios in which culture-specific designs were considered for the few. For Elsa, the distance education program was specialized to her interest in Spanish culture, but can culture-specific educational experiences be replicated throughout distance education programs?<sup>1</sup> North American game companies desire to create culture-specific video games to broaden their market, but how can other companies create culture-specific entertainment games? Researchers in Illinois and Pennsylvania designed culturally relevant computer-mediated environments for African American children; can culture-specific educational products be designed for other specialized groups of people? In several examples, e-learning is made culture-specific through the infusion of language, but what other design specifications can make a product more culture-specific? For Kijambu in Uganda, there is a need to localize, specialize, or make more culture-specific user interfaces that address content, language, and other cultural considerations; how can other indigenous languages be included in this Internet revolution? These scenarios dem-

onstrate that, worldwide, there is a need to better understand the impact of culture on design and development. In designing for societies, culture, or people, culture is considered. When we design for people, we should design with culture in mind.

When it is unclear why a group of people rejected a product, culture should be considered. When a product does not sell, culture should be considered. Culture should be considered:

- When learners fail to communicate in a distance education environment.
- When learners fail to learn.
- When users fail to understand the intricacies of user interfaces.
- When a culture fails to learn from its previous historical mistakes.
- When rulers overthrow a country.
- When government officials kill themselves.
- When consumers fail to buy products.
- When users fail to communicate.
- When technologies are not used by consumers.
- When the design of a product fails learners or users.
- When we do not understand our target audience.
- When indigenous cultures reject technology or appropriate technology.
- When an entertainment game fails to entertain.

When we cannot figure out where to begin, begin with culture, because culture is everything.

Questions this book seeks to answer include: Is culture important to the design of ICTs? What does it mean to create a culture-based product? How can research help product development and understanding the target audience? How can integrating culture better meet the needs of the target audience? How do you plan and design with culture in mind? How do you analyze ICTs for culture? How do you create an unbiased product? Is it possible to create a culture-specific product for one target audience? Is it possible to make the design process more explicit? How does culture impact design decisions?

This book details the culture-based model (CBM), a model of culture that assists designers, researchers, and practitioners in building a framework for culture-based ICTs. CBM is an intercultural, instructional design framework that guides designers through the management, design, development, and assessment process while taking into account explicit culture-based considerations. The model is intercultural because it operates inside, outside, and across cultures and cultural contexts. This book defines the entire model. Relevant case studies of how to use the model in instructional design, e-learning, game design and as a diagnostic tool are provided.

CBM is adaptive in that it can be used in conjunction with traditional instructional design models or on its own. The designer prescribes methods on the basis of the preproduction analysis and research, the ongoing production, and the postproduction (Reigeluth, 1983). The model, as with any instructional design model, should be modified on the basis of the context of the processes (Bates, 1995; Gustafson & Branch, 2002; Seels & Glasgow, 1998; Tessmer & Wedman, 1995). Traditional instructional design models are “blueprint[s] of the instruction itself,” and they focus on “what the instruction should be like” (Reigeluth, 1983, p. 24). However, CBM focuses much more broadly. It is a blueprint of the management and design processes, and it focuses on what the content should be. CBM brings the human element into design-related disciplines (Douglas, 2006). A complete analysis of the empirical study, where CBM is derived can be found in Young (1999).

Within the context of this book, instructional design maintains its traditional definition and meaning. Instructional design proposes that learning occurs in a systematic-oriented manner, producing measurable outcomes, and that there is a process to facilitate this learning (Reigeluth, 1983; Richey, 1986). This process is grounded in a generic system of Analysis, Design, Development, Implementation, and Evaluation—the ADDIE model. Instructional design translates principles of learning theory and instruction into a plan for the design of instructional products, activities, and evaluations (Smith & Ragan, 2005). This process approach is significant for the design of ICTs because it provides a systematic or structured methodology that all practitioners can follow in the design process. By systematizing or organizing the design of products or online environments, they are more apt to be well built and researched instruction. This type of “designed instruction” is integral to meeting the needs of learners (Gagné, Briggs, & Wager, 1992, p. 4).

Culture is a core construct of all design decisions; however, its potential to improve the design process has been mostly ignored in the field of instructional design (Subramony 2004; Young, 2008b). This is exemplified in key texts on instructional design where culture is described in its environmental context or from a cultural historical perspective—not in terms of designing instruction (Dijkstra, Seel, Schott, Tennyson, 1997; Reigeluth, 1983; Tennyson, Schott, Seel & Dijkstra, 1997). This lack of interest in culture as a design construct may be prevalent for various reasons. First, designers are not sure how to represent culture in the design process, what to look for, or what to include. Second, there may be conflicts between the culture of the target audience and the technology, and many designers are grappling with how to bridge these communication connections (Chu & Reeves, 2000). Third, a comprehensive framework in which to align culture with the ADDIE model has not been available. Finally, the inclusion of “cultural frames of reference” may not have been seriously considered (Gay, 2000, p. xix).

This book crosses academic and disciplinary camps, and national and international waters, to obtain balanced perspectives. Knowledge is knowledge, and it is

there for one to freely learn from and make one's own scholarship. Interdisciplinary work like this is not an easy task, but it has been an education I hope worth the time and effort.

CBM brings something old, something new, something borrowed and something blue to the discussion of culture; this work positions culture as a design construct. Culture as conceptualized here is real and imaginary. Culture is real when designers design with real people in mind. Culture is imaginary when designers build fictionalized worlds and design with real people in mind (Plotkin, 2003). The human element is always present when designing with culture in mind. Design allows the freedom to be multidimensional in one's thinking and doing.

## **FROM DESIGNERS TO RESEARCHERS**

In general, this book is for anyone who is attempting to design with culture in mind. It is also for anyone who seeks to analyze culture in anything from printed documents to Web-based environments. The content of this book provides the tools for building, evaluating, and designing a society, culture, or target audience. Next, I have defined how this book can help people with different roles and interests.

### **Designers**

For the novice/professional instructional designer and e-learning designer who has interests in incorporating culture into the design of instructional products, user interfaces and other on-line environments, this book assists in building a framework for the design of a culture-based product. It provides the tools to tailor instructional content to a particular target audience. It aids in addressing the communication and miscommunication issues that are prevalent in online environments. In terms of user interfaces, this book provides the features for creating for generic or specialized interfaces.

### **Professors**

Professors could use this text to define culture, provide a background to the fields of culture and instructional design, conceptualize culture as a design construct, exemplify the aspects that make up a culture, and demonstrate how students might integrate CBM in their designs. This book can be used as a resource in understanding the dynamic complexity of culture and what should be considered when designing with culture in mind. For a course in design, this could be one of the primary texts or workbooks. Section I provides all the research and theory. Sections II and III

are designed to be used as a workbook. With Section II, students are not expected to read through all the areas of CBM but to use these areas as guides in the design process. Section III provides case studies and students may read through these chapters when formulating their thoughts to begin designing.

## **Students**

Graduate and undergraduates who have interests in designing ICTs should find this handbook helpful. In terms of research, students will find the book a resource for research references and a tool to analyze societies, cultures, and groups/individuals. The practical examples throughout the model provide students with guidance in understanding design factors and making design decisions. The guiding questions throughout give students the support needed to work on their own or in small groups. The guiding questions support design and research efforts; they help students ask the right questions and choose the best direction. Section III provides four chapters of case studies that detail the design process using CBM. Students should find these chapters accessible and comprehensive. The problem for students may be limiting the number of design factors, given the amount of options offered in CBM.

## **Researchers**

This text can be used as a handbook for researchers who seek to define anthropological, psychological, or scientific concepts in relation to ancient and existing cultures, contemporary or indigenous groups, instructional products, on-line environments, printed documents, or any other ICTs. The design factors in CBM Elements enable researchers to collect data, analyze information, assess cultures, and define target audiences. CBM Learners allow researchers to evaluate the connections between learning and culture. Section I provides the theory, research, and concepts for further in-depth research. Researchers who are interested in the empirical path to this model of culture may begin with Young's (1999) work, continue with subsequent articles and chapters (Young, 2001, 2008a, 2008b, 2008c, 2008d, in press-a), and end with this book.

## **MORE ON THE BOOK**

This book seeks to appeal to national and international audiences. Although a Westerner has written this book, there are examples throughout from people, cultures, and societies around the world. As the author, I have tried to provide a culturally sensitive text that has cross-cultural applications. This is a difficult task nonetheless; however, I ask readers to be open-minded in rediscovering how to reconceptualize culture.

The bibliographic references are used throughout to support the writing and provide the reader with additional data on how some ideas were developed. The book is thoroughly researched to provide authenticity to each section, and examples are offered to guide the design process.

This is a book to be used, not just read. This means that a researcher who wants to analyze a culture may read the entire book but only use the chapters related to CBM Elements for the analysis. Any designers of instructional ICTs could read and use the design factors throughout the entire book. Game designers might read and use design factors throughout the entire book.

ICTs, as defined in this book, follow the description adopted in the field of education. ICTs include a broad range of technological and resource tools that communicate, store, transmit, produce, manage, and disseminate information. These technologies include the following: Internet, World Wide Web, computers, cameras, CD-ROMs, DVDs, audiotapes, videotapes, radio, television, films, telephones, and print technologies (Blurton, 1999).

Two other terms that need defining are society and culture. A society is a group of people who share commonalities that are understood by all and who collectively inhabit a particular physical area (Germain & Bloom, 1999; Segall, Dasen, Berry, & Poortinga, 1999). Every society has a culture or ways of being, doing, and thinking. This culture shapes the society's behavior (Ember & Ember, 1996; Hofstede & Hofstede, 2005). In understanding a culture, there must also be an understanding of its past and present histories and the histories of its people (Kim & Park, 2006).

This book does not claim to incorporate all factors consistent with culture-based designs. It provides a comprehensive set of design factors that, when implemented, can best serve to authenticate a culture-based design. As designers, researchers, and educators, it is important to understand the impact of culture on design. This book provides guidance in making explicit those aspects of human nature and Mother Nature that make cultures valid.

## **THE INSTRUCTIONAL DESIGNER AND DESIGN**

Instruction is shaped by the instructional designer. Instructional designers create physical and virtual environments where learning is facilitated, incentives offered, and rewards earned (Johnson, 1989). These designs can comprise a single set of instructional materials, one course, or an entire program or curriculum. The instructional designer differs from the curriculum specialist in that the curriculum specialist is usually an expert in a particular subject matter; however the instructional designer works through a process whereby he or she designs projects in a number of disciplines. Although instructional designers are usually not teachers, they base

their knowledge on what they know about how people learn (Richey, 1986; Smith & Ragan, 2005). It is assumed that their designs will foster learning.

Instructional designers proceed through a process type approach when they design solutions. The design process has several stages: “[I]dentify the problem, design a solution, implement the solution” (Van Patten, 1989, p. 18). Identifying the problem means finding out as much as possible through observations; the analysis of artifacts; and discussions with clients, sponsors, subject matter specialists, producers, actors, teachers, and learners (Rowland, 1993; Van Patten, 1989). This needs assessment should include the impact of a problem or need, and it should be recorded. Designing a solution that efficiently meets the needs of the project is the next step. This solution must be financially doable. Instructional designers then create a number of design solutions or products that address the problem or need, its impact, and the expense (Van Patten, 1989). Then, instructional designers use three types of information: “what they know, what they observe and what they feel” (Van Patten, 1989, p. 18). Designers use their wisdom, observational skills, and intuition to ascertain the problem. Thereafter, they design and implement a solution specific to the needs of the learner (Van Patten, 1989).

Anne-Marie Armstrong (2004), a practicing instructional designer argues that, in the real world of instructional design frequently there is limited time for preparation and long-term contemplation. Production is quickly followed by assessment, revisions, and then piloting the product. The instructional designer must be flexible, efficient, and creative.

Jillian Rickertt (2004), an instructional designer, described an assignment in Asia where her limited understanding of a particular Asian culture conflicted with her job of designing and delivering a “Train the Trainer” course to a group of Asian customer service representatives. During and after the job, Rickertt (2004) reflected on her response to situations and her beliefs. For example, the classroom environment in which Rickertt would “train the trainers” was cramped with rickety chairs, and only 3 of 20 computers were operational. Rickertt had higher expectations, being from Australia. On the morning of the first day of training, technicians were working on the room; in hours, the chairs were fixed and all the computers were working. In this example, Rickertt’s perception of the quality of the environment was based on her own cultural experience. Rickertt also reflected on how she could have created better formative evaluations had she known that taking tests and achieving high scores motivated the target audience in this culture.

There is a tendency for designers to impose their ideologies upon the target audiences who will use their products or implement their designs (Taylor, 1992). By considering the culture of the target audience in the design process, the designer might be more inclined, for example, to have text in multiple languages, consider the relevancy of graphic images, explore gender issues, design appropriate tests, exhibit cultural consciousness and sensitivity, and consider the cultural context.

Taylor (1992) examined how software designers could aid companies in acquiring an international market share for their computer technology. To acquire these foreign markets, he found that operating systems needed to function in a language conducive to the learner, not the designer. Doing this is “just good business (p. 10).” Software products needed to incorporate the language and culture of the target audience—what Taylor described as internationalization (foreign) or localization (domestic). This is prevalent in that some operating systems function in many languages and incorporate cultural concepts.<sup>2</sup>

Like the software programmer, the instructional designer needs to acknowledge his or her own culture, language, ideologies, and standards. Instructional designers need to provide a “cultural context” and culture-specific design specifications. A cultural context means examining situations from the point of view of the target audience (Taylor, 1992). Culture-specific design specifications can be applied based on models of culture—like CBM..

Interacting in a world of diverse peoples requires that individuals have their own cultural identity (Hofstede, 1991) and understand their cultural values. These skills translate into an understanding of others. The instructional designer might begin with these seven steps:

1. Develop a deeper understanding of your own culture. Ask family members about your ethnic heritage. Become proactive in learning about your ancestry.
2. Wipe out any preconceived notions about the target audience
3. Start with a basic slate of what you know about human beings and social interaction.
4. Apply only the coloring that is there, not what you have come to believe.
5. Situate the design in context. Build the cultural and instructional context around the target audience.
6. Go with what you know about ADDIE!
7. Be creative!

To limit cultural bias, an individual needs to de-center themselves<sup>3</sup>. De-centering is the process in which members of a team reject the focus on Western ideologies and try to promote a focus on the target audience’s culture and learning needs (Hofstede, 1991). Designs and designers are not equitable; therefore, the assumption that, if one thinks culture, one does culture is not true (Scheel & Branch, 1993). Integrating culture in design must be an explicit act.

## OUTLINE OF THE BOOK

Section I provides background research to all areas covered in the book—namely instructional design and culture. The nature of culture as a design construct is defined and explored. CBM is introduced and an overview of the components of the model.

Chapter I provides the theoretical, methodological, and conceptual background to understanding the role of culture in instructional design. It begins with an overview of learning theories to the development of instructional design theories. Then the chapter reviews some early perspectives on culture. Last, connections are made between culture, design, and ICTs. This chapter provides international and national perspectives in instructional design.

Chapter II is a conceptual chapter that explores perspectives on the nature of culture in design. This chapter looks at the many facets of culture.

Chapter III provides an overview of CBM. It uses a question-and-answer format to address basic questions about the model, such as the following: What is CBM? Where did CBM come from? What can CBM do? Who would use CBM? What are CBM's components? How does CBM work? How do you manage CBM? Why is CBM intercultural?

Section II should be used as a handbook or reference resource. These chapters cover all components of CBM. The areas are defined, described, and illustrated with relevant examples. Guiding questions that direct the designer in creating a generic or specialized product are provided. Generic products are guided by culture guiding questions (culture GQ). Specialized products are guided by target audience guiding questions (target audience GQ). Given the comprehensiveness of CBM's ID-TABLET, it is best covered over several chapters. Therefore, the areas of the model are covered in Chapters IV-XIV. The areas are ordered according to CBM's management and design system—the ID-TABLET.

Chapter IV covers CBM Inquiry and Development. Inquiry acts as a monitoring system for the design process. Development controls issues related to problem solving.

Chapter V includes CBM Team, Assessments, and Brainstorming. Team handles all the decision making for the project. Assessments cover several forms of evaluation, and Brainstorming is the primary planning area for the project.

Chapter VI focuses on the area CBM Learners that manages most of the instructional goals of the project.

Chapter VII begins CBM Elements I; Elements is divided over eight chapters. The focus of CBM Elements is content development. This first section of CBM is devoted to Elements specific to the anthropology of culture. This chapter continues with design factors Cultural aesthetics, Cultural artifacts, Cultural capital, and Cultural classification.

Chapter VIII covers CBM Elements II. This chapter focuses on the design factor Cultural communications.

Chapter IX covers CBM Elements III. This chapter outlines the design factors Cultural demographics and Cultural environment.

Chapter X covers CBM Elements IV. Cultural history is covered in its entirety.

Chapter XI focuses on CBM Elements V. This chapter covers several design factors that include: Cultural knowledge, Cultural language, Cultural physiology, Cultural relations, and Cultural resources.

Chapter XII covers CBM Elements VI, and begins with the section the psychology of culture. The design factors covered include: Cultural beliefs & values, Cultural experiences, Cultural ideas, Cultural identity, Cultural interests, Cultural misconceptions, and Cultural ways.

Chapter XIII covers CBM Elements VII, and begins with the section the science of culture. The design factors covered include: Cultural anomalies, Cultural cultures, and Cultural futures.

Chapter XIV completes the final parts of CBM Elements VIII and the area Training. The design factors covered include Cultural infinities and Cultural nature. Training is another area under the management of the project. This is where education about the product takes place.

Section III provides 4 realistic case studies using CBM and the concluding chapter. These chapters align with CBM's framework.

Chapter XV examines CBM's ID-TABLET and how it functions in building an educational product. Specifically, this example demonstrates the basics of a custom development or building a project from scratch.

Chapter XVI connects CBM's ID-TABLET to a case study in game design. This example illustrates an Add-on or adding on to an existing video game.

Chapter XVII connects CBM's ID-TABLET to a case study in e-Learning. This example demonstrates how to use the ID-TABLET for re-engineering an e-learning environment.

Chapter XVIII connects CBM's ID-TABLET to a case study in Research. This example presents the use of the ID-TABLET as a diagnostic evaluation tool.

The conclusion, Chapter XIX, offers some thoughts on the future of culture-based designs, the field of instructional design, learners and designers of the future, and other ideas.

The significance of culture in the design ICTs will be important as business, industry, government, and educational institutions that seek to meet the needs of target audiences, diversify the designs of products and services, and capture larger markets. This globalization in design practices is the future of instructional design and design practices in general.

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## ENDNOTES

<sup>1</sup> Entertainment games include any of the following: educational, serious, massively multiplayer online, video, etc.

<sup>2</sup> Taylor (1992) found that software must address the cultural context of the learner. He identified several concepts related to language, notational conven-

tions, and other features of hardware and software interfaces. (a) Transliteration means translating concepts from one language to another. For example, shifting cases on American keyboards does not translate into other languages that do not have capital letters, such as Arabic and Hebrew. (b) Hyphenation rules differ from one language to another. Words in some languages are not hyphenated, and some languages lend themselves to hyphenation rules. (c) Spelling checkers in software programs are difficult to adapt to the cultural contexts and idiomatic expressions of languages. For example, a spell checker fails to function with slang and colloquialisms such as “sho nuf.” (d) Collation or sorting is associated with languages. For example, the letter *n* is added to the Spanish language, and in Japanese, sorting is not done alphabetically but by proper names. (e) Notational conventions are concepts such as time, date, numbers, currency, and so forth that vary from one culture to another.

<sup>3</sup> Although Hofstede (1991) is referring to research, the idea of decentering oneself from cultural bias is also applicable in this example.