

# Chapter IV

## The Culture Based Model: A Framework for Designers and Visual ID Languages

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### ABSTRACT

*Globalizing the field of instructional design lies in the building and nurturing of innovative models, frameworks, visual languages, and practices that include culture-based considerations. This chapter argues that culture, as a design construct, is integral to educating learners and enhancing the design process. This is supported by a review of theoretical and methodological studies that define culture and an examination of models of culture that are supported by VIDLs. Further, the significance of VIDLs as design tools is offered through the culture based model (CBM) 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 chapter provides a description of the origins of CBM, an overview of relevant research, and an outline of the model and its possible applications with VIDLs. This research suggests that VIDLs can serve a broader scope if culture is considered.*

### INTRODUCTION

The **globalization** of instructional design is the direction for the 21<sup>st</sup> century and beyond.

Future designs of instruction, like the emerging VIDL, must consider **culture** as an integral component to the **design process**. 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, in press-a). 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, nor 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 integrate culture into the analysis, design, development, implementation and evaluation (ADDIE) process has not been available. Finally, the inclusion of “cultural frames

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of reference” may not have been seriously considered (Gay, 2000, p. xix).

Instructional design (ID), over the last 20 years, has seen more of a focus on improving and understanding learning and instruction (Jonassen, 1996, 2004; Reigeluth, 1983; Tennyson & Schott, 1997) and less of a focus on how culture influences learning and instruction (Subramony, 2004; Thomas, Mitchell, Joseph, 2002; Young, 1999, 2008). The literature in ID examines culture through the application of theories and methods such as cultural diversity, cultural pluralism, and cultural sensitivity (Scheel & Branch, 1993); thereby aligning itself with educational trends that promote multiculturalism (Banks & Banks, 2003). Culture is broadly conceived in ID; and its importance in the design process has not been fully considered because there has not been a model or framework that is fully driven by a **cultural context** until the **culture based model** (CBM). 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 and its relation to visual languages will be further elaborated on in this chapter.

The designer operates in a larger context in the design process (Kelley & Hartfield, 1996; Winoograd, 1996). Therefore, the role of the designer and their tools, such as VIDLs, are part of this context. Botturi, Derntl, Boot and Figl (2006) define a VIDL as a “set of concepts that support structuring a design task and conceiving solutions” (p. 1216). As an example of the designer’s role, the architect must learn about the land, laws, people, property rights and other aspects of a culture before creating a blueprint. Given the data about the target audiences’ culture, the architect may add an alcove for a religious sculpture, adjust the physical layout (e.g., wheelchair accessible pews), or accommodate language inscriptions to be carved in the concrete pavement upon entrance into a building. Similarly, the designer must learn

about the people, learning styles, histories, etc. that will influence the VIDL and the creation of the product.

Taylor (1992) argues that a cultural context does exist between design and designer; therefore the design process must be viewed from the perspective of the culture or society. Visual languages, according to Kress and van Leeuwen (2006), are not “transparent and universally understood; [they are] culturally specific” (p. 4). Given this, designers should be cognizant of their target audience’s culture and how culture influences the design, designing and the designer.

This research positions the designer in that larger context, proposes opportunities in CBM in which to use VIDLs and provides a comprehensive portrait of the designer in the design process. The overall argument proposes that culture is integral to educating learners and to enhancing the design process. Further, CBM aids designers in considering culture, and visual languages provide **support structures** for **models of culture**.

This chapter reviews theory and methods that support research on culture, ID, models of culture, visual languages and CBM as an ID framework. First, multiple perceptions of cultures are offered through a review of traditional definitions, a definition specific to ID, and an alternative perspective on the nature of culture in design. Specific to the goals of this handbook, the remainder of this chapter presents relevant examples of visual languages across disciplines that have developed “models of culture” and the application of these models. The chapter further provides a culture-based framework in which visual languages can operate. The chapter concludes with some final thoughts.

## **CULTURE AND INSTRUCTIONAL DESIGN**

Culture means many things. Geertz (1973) interpreted culture as a “historically transmitted pat-

tern of meanings embodied in symbols, a system of inherited conceptions expressed in symbolic forms by means of which men communicate, perpetuate, and develop their knowledge about and attitudes toward life” (p. 89). Hofstede (1991) proposes that culture is learned; it is not part of one's genetic makeup. In the area of cultural studies, culture is concerned with how meanings are interpreted and created in a society (Gray & McGuigan, 1997; Hall, 1997). Williams (1958), a cultural theorist, believes that “culture is ordinary” (p. 74). It is made in the human mind making possible effort, examination and explication. That is, culture is what is known (tradition) and what comes to be known through investigation and invention (creativity). These meanings of culture demonstrate its importance as a theoretical construct to explain the meaning of human kind but also its malleability as a design construct to redefine the design process.

In ID definitions of culture are broadly based to include sociological, anthropological and educational perspectives (Chen, Mashhadi, Ang, & Harkrider, 1999; Powell, 1997; Williams-Green, Holmes, & Sherman, 1997); thus, culture is pervasive (Scheel & Branch, 1993; Williams et al., 1997). Scheel and Branch (1993) offer a comprehensive definition that encompasses the interdisciplinary perspectives of culture:

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

This definition of culture in ID helps designers to consider the many facets of culture while building information and communication technologies (ICTs). However, these beliefs, definitions and theories about culture do not address the nature of culture in design.

## **QUALIFYING THE NATURE OF CULTURE IN DESIGN**

The nature of culture in design moves beyond static definitions and interpretations in that culture is dynamic, malleable, fluid, and always in motion. Culture is created and recreated by man's production. (This definition and the ideas in this section have been informed by the following researchers: Giles & Middleton, 1999; Hall, 1996; Kroeber & Kluckhohn, 1966; Scheel & Branch 1993; Williams, 1958.)

A simple question answer scenario about culture might proceed as follows:

- **Who is culture?** Culture is everything human-made and nature-made.
- **What is the purpose of culture?** The purpose of culture is to serve humans.
- **How does culture function?** Culture functions as humans direct it to.
- **When will culture end?** When humankind ends, culture will end.
- **Where is culture?** Culture is everywhere.
- **Why do we need culture?** We need culture to tell our history.

“Culture is not a fixed construct” (Powell, 1997, p. 15). It is not tied to a discipline, theory or controversy. It exists freely in the space of design. This emulsion is the space in which design should exist and designers should work. In the design of ICTs, the goal is to recreate culture or represent culture. Culture does not have physical or virtual properties in design until the designer

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assigns those properties. Culture is not real until designers make it real.

The nature of culture in design is creative. Creativity is derived through the implementation of the design process. However, some innate creative ability is required of designers and the design. Is creativity a prerequisite for designers? Or can anyone be a designer? An inventive spirit requires the ability to see beyond the obvious and to design new ways to envision one's physical or virtual reality. Kelley & Hartfield (1996) argue that the creative potential is something everyone possesses.

Because culture has to be recreated, simulated, virtualized in the space of design it must contain dynamic—free flowing properties. These properties are assigned by designers, programmers and other members of the design team. The assignment of property gives functionality—purpose. The nature of culture in design maintains fluid properties that are managed by designers.

## **MODELS OF CULTURE**

Models of culture have been designed, developed or discovered to explain humankind and our existence in the world, explore diverse learning and learners, and provide a framework for cross cultural research and analysis. These models of culture can be found across disciplines and conceptualized in a variety of forms and formats. In psychology, models of culture focus on explaining processes of the mind (D'Andrade, 1990; Quinn, 1987; Schank & Abelson, 1977). D'Andrade's (1990) American folk model of the mind, for example, contains six elements related to cognitive states or processes. The six elements include: (1) perceptions, (2) belief/thought; (3) feelings/emotion; (4) desires/wishes; (5) intention; (6) resolution and will. The research of Triandis (1995), in the area of social psychology, focused on the cultural dimension of individualism and collectivism to further explain human behavior.

Triandis continued to build on the individualism and collectivism dimension by defining other attributes such as self, independent or interdependent, horizontal or vertical, in-group goals, and norms/attitudes (Triandis, 1989; Triandis & Gelfand, 1998). Anthropological models of culture examine the whole culture looking at the shared behavior and knowledge of an entire culture (Hall, 1976). Hall (1966, 1976, 1983) theorizes that there are several dimensions of culture—time, context and space. Further, time, context, and space, as models of culture, are perceived and experienced differently by individuals, groups and societies around the world. In the area of intercultural communication, researchers have focused on value systems and orientations and how they differ across cultures (Condon & Yousef, 1975; Hofstede, 1980). Hofstede (1980), by example, identified five dimensions of culture-based on the value systems of respondents in 72 countries/regions, and these values were consistent with human acting, thinking and feeling. The dimensions include: power distance, uncertainty avoidance, individualism versus collectivism, masculinity versus femininity, and long-term versus short-term orientation. In the field of business, researchers have developed dimensions of culture that assist business personnel in understanding the effects of culture on management and how cultural values and practices are similar or different (Javidan & House, 2001; Trompenaar & Hampden-Turner, 1998). A widely used model is the Trompenaar and Hampden-Turner (1998) seven dimensions of culture that seek to help individuals and groups understand cultural differences between and within cultures. The dimensions include: (a) relationships with people; (b) universalism versus particularism; (c) individualism versus communitarianism; (d) neutral versus emotional; (e) specific versus diffuse; (f) achievement versus ascription and (g) attitudes of time & environment. In the field of ID, models of culture focus on the integration of culture in the design process and enhancing learning through the incorporation of

culture based **design specifications** (Edmundson, 2007; Henderson, 1996, 2007; Lee, 2003; Thomas et al., 2002). The cultural adaptation process (CAP) Model, designed by Edmundson (2007), is a guide for pre-existing e-learning courses as it connects designers to the “cultural profiles” of learners (p. 267). The model provides a matrix consisting of four levels designating courses that are **generic** (level 1) to more **specialized** (level 4) and Steps 1-5 contain the course characteristics from the most generic to more specialized. The model seeks to aid in the development of culturally appropriate e-learning courses. Henderson’s (1996, 2007) multiple cultures model (MCM) is an instructional design model for e-learning and e-teaching that helps instructors to offer culturally specific knowledge to learners and balance academic, industry and global cultures. MCM consists of “various cultural logics” that include: global academic cultures; societies dominant culture; indigenous and ethnic minorities cultures; gender, religion, class cultures; and workplace cultures and pedagogies (p. 136). Thomas et al.’s (2002) third dimension model is an extension of the ADDIE (analyze, design, develop, implement, evaluate) model in that it is iterative, multi-directional and three-dimensional. The Third Dimension seeks to provide instructional designers with design parameters that focus on culture and foster **culturally sensitive** products. The three parameters added to the existing ADDIE model include: intention, interaction and introspection. This multi-disciplinary inquiry of models of culture suggests that there is a need for frameworks grounded in culture that can best help to deconstruct the complexity of cultures and provide guidance in cross-cultural designs, relations, meanings, communications, etc.

## **VISUAL LANGUAGES AND MODELS OF CULTURE**

Visual languages, in an interdisciplinary sense, serve multiple roles. The first is to communicate a

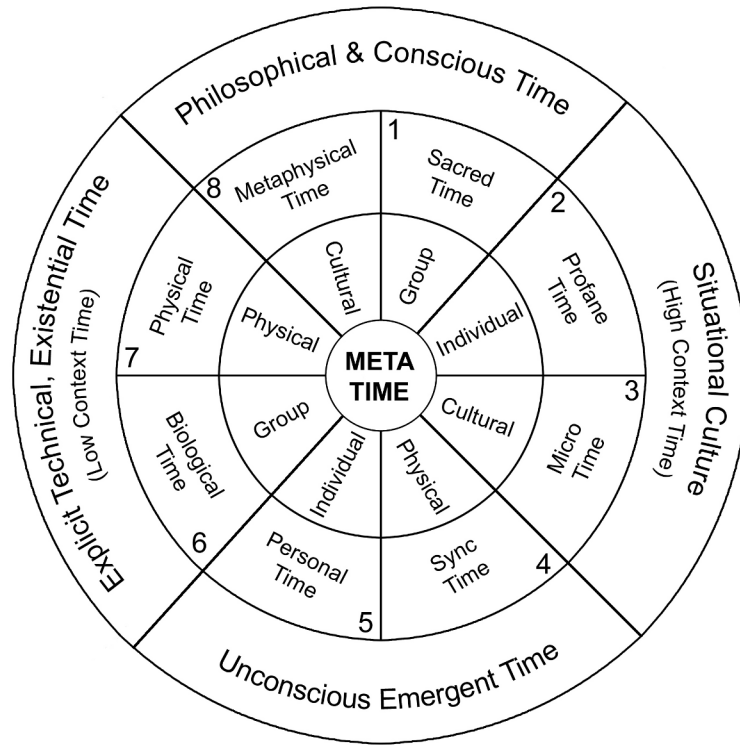
message through a visual or functional language (Winograd, 1996). Second, visual languages provide a synthetic idea, image or metaphor of complex ideas (Botturi, 2006). Third, visual languages create a grammar or produce meanings for its use (Kress & van Leeuwen, 2006). An examination of models of culture reveals that most are guided by visual languages or a graphic representation of the researcher’s ideologies about culture (Hall, 1966, 1976, 1983; Henderson, 2007; Hofstede, 1980; Thomas et al., 2002; Trompenaar & Hampden-Turner, 1998). Specifically, some graphic representations display the functioning of the model of culture and others the researcher’s perception of culture. Overall, this visual language is usually simplistic but some take on more complex forms. The goal of the visuals has been to convey ideas, beliefs, values, meanings and understandings about culture. Edward Hall (1983) for example, used the visual representation of a mandala, a classification device that shows relationships, to convey the cultural dimension of time. Figure 1 represents Hall’s “map of time” as perceived in high context and low context cultures. (High context cultures provide little information in communicated messages. Low context cultures offer more explicit information in communicated messages.) Hall (1983) argued that time should not be perceived in a linear fashion but as a “cluster of concepts, events and rhythms” (p. 13). Ultimately, Hall demonstrated how cultures and historical time periods could be categorized and applied to cultures. By example, the Hopi Indians of North America live by sacred time and Americans by profane or micro time. For designers, this suggests that target audiences perception of time and how they use time may need to be considered in the design process.

Trompenaar and Hampden-Turner (1998) used a graphic representation to describe the meanings inherent in the multiple layers of culture. Figure 2 exemplifies “a model of culture.” On the explicit layer of culture are those things that can be observed; they are tangible. This includes artifacts and products such as clothing, food, language,



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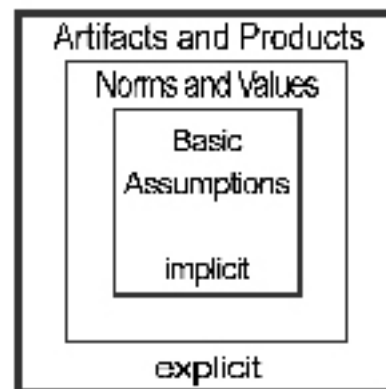
Figure 1. Adapted from Edward T. Hall (1983): A map of time



buildings, and agriculture. The middle layer reflects the norms and values of groups. Norms refer to a group’s sense of right and wrong. Values refer to shared ideas of a group. At the core are the implicit but basic assumptions of human existence. Assumptions refer to how groups organize themselves to survive in their society and with nature. For designers, this suggests that designs should consider the multiple layers that comprise their target audience’s perspective on the world and themselves. Further, there is great depth to our human existence and that can be reflected in our designs decisions.

Visual languages serve to represent processes, applications, methodologies and theories. Researchers and theorists have used visual languages to simplify or deconstruct complex compound ideas about culture. These two examples demonstrate that culture is a core component in articulating humankind. Therefore, it should be central to designer’s recreation of human processes (i.e., learning, thinking, doing).

Figure 2. Adapted from Trompenaar and Hampden-Turner (1998): A model of culture



**CBM AS A MODEL OF CULTURE**

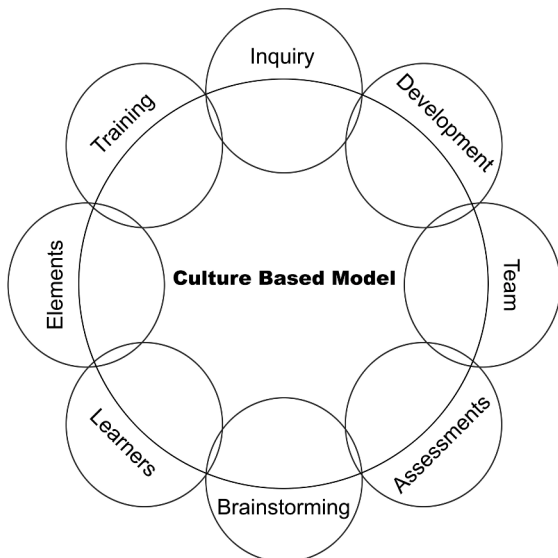
CBM represents a contemporary example of a model of culture (Figure 3). It is symbolized by the graphic representation of a circle encased by other circles to demonstrate its iterative functioning and self-selection process. The functioning

symbolizes how the model continues to work like a machine each active component responding to the next. The self-selection allows designers to choose which area components best meet the needs of the project. CBM is comprised of eight areas consistent with the acronym: ID-TABLET. These areas include: **inquiry**, **development**, **team**, **assessments**, **brainstorming**, **learners**, **elements** and **training**.

As a model, CBM provides a framework to enhance the design process through the integration of culture-based design specifications. This framework enables designers or researchers to do the following:

- Integrate features of culture throughout ICTs
- Understand people and societies
- Communicate across and within cultural contexts
- Screen for bias
- Design authentic culture-based technologies
- Research the culture-based qualities of a target audience or culture

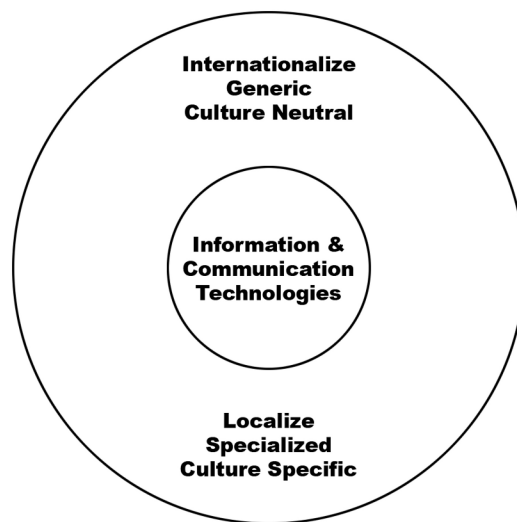
Figure 3. The culture based model: ID-TABLET—A model of culture



- Create generic or specialized designs
- Analyze ICTs

This research argues that all designs are based in culture; however some are **culture neutral** and others **culture specific**. This means that all designs are culture-based, but the measure to which one is more neutral and the other more specific to a target audience varies based on the goals of the project. The **culture-based circumference** (Figure 4) displays the space in which design happens and that this space is occupied by design specifications that meet generic and specialized target audiences. Generic features can be generalized across cultures but they are still culture-based. Specialized features focus on meeting the needs of a particular target audience, and they are also culture-based (Horton, 2005). For example, graphic symbols can be generic or specialized. Figure 5 is a generic symbol for turning or going right. Figure 6 is specialized; it is the Hamsa, a Judaic symbol regarded as a sign of protection warding off evil and leading to good fortune and personal well-being.

Figure 4. Culture-based circumference for use when designing ICTs (Young, in press-a)

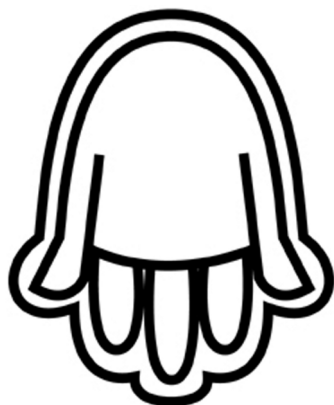


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Figure 5. Go right



Figure 6. Hamsa, a Judaic symbol for protection



If the goal of the project is to internationalize, then the design specifications are generic and culture neutral (Figure 4). If the goal of the project is to localize, then the design specifications are specialized and culture specific. Internationalization seeks to eliminate culture making the product one that can be used by all or a universal design. Localization tailors products to the needs of a target audience. For designers, this means that culture-based design specifications exist within a circumference of the generic to specialized; therefore there is a much broader palette in which to design (Young, in press-a).

### What is CBM?

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 framework provides design guidance from the inception of an idea to beyond its completion. Guidance is approached from the target audience's or learner's perspective.

CBM is adaptive in that the designer prescribes methods based on the pre-production analysis and research, the on-going production, and post production (Reigeluth, 1983). The model, as with any instructional design model, should be modified based on the context of the processes (Gustafson & Branch, 2002; 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 like. CBM brings the human element into design related disciplines (Douglas, 2006).

Traditionally, instructional design models have been based on learning theories. However, CBM evolved from an empirical study of instructional products designed by and for African-Americans. A treasure of themes and concepts related to culture were found in these materials and were classified as cultural remnants. Cultural remnants are the racial, ethnic, cultural, linguistic, political, social, historical, educational and economic artifacts embedded in discourses. The cultural remnants found in these instructional products were generalized to meet the design needs of cross cultural audiences and this translation resulted in CBM (Young, 1999, 2001, in press-b).

CBM builds a framework that begins with identifying the goal of the design. These goals can be classified in one of the following categories:

- C Custom development
- A Add-ons
- R Re-engineered
- D Diagnostic evaluations



Custom development is for the construction of a project from scratch. Add-Ons refer to making additions to an existing product. A pre-existing off-the-shelf product or on-line environment can be re-engineered. Diagnostic evaluations can be performed on products in any form of ICT.

CBM can be used by instructional designers, e-learning designers, web designers, usability practitioners, researchers, curriculum developers, students, and other practitioners. The model meets the needs of a broad audience by allowing for the selection of components based on the project goals, design specifications, technological requirements and content area needs.

## **VIDLs AS SUPPORT STRUCTURES**

Designers operate in a larger context in the design process (Kelley & Hartfield, 1996; Winograd, 1996); this may include participating broadly in functions or on assignments specific to the implementation of visual languages. VIDLs focus on the “object being designed” (Botturi, 2005, p. 330; Rheinfrank & Evenson, 1996). This perspective and the subsequent notation system complements CBM as this framework focuses on the target audience, process, and content. CBM works on the larger functioning of the production machine, and VIDLs operate the nuts and bolts that make the machine work.

CBM supports designers broadly in all of its components and the modeling of visual languages in the areas of development, elements, assessments, and learners. As a comprehensive tool, CBM is integrated throughout the production process to enable the accurate representation of the target audience and their needs. Therefore, preparing designers for this task is as important as the process and product.

In turn, VIDLs support the structure of CBM. For example, Botturi (2005) found that VIDLs can bring consistency to design decisions. Consistency can bring efficiency to the design process

and enable quicker design decisions. VIDLs can “improve precision and productivity” (Gibbons & Brewer, 2005, p. 111) and allow for the easy replication of minute tasks. The design process can be improved and made more efficient through VIDLs (Gibbons & Brewer, 2005).

## **CBM AS A FRAMEWORK FOR VIDLs**

The following narrative provides an overview of the areas and design factors in CBM. There are eight areas consistent with the acronym: ID-TABLET (Figure 3). These areas include inquiry, development, team, assessments, brainstorming, learners, elements and training. Each area is further defined through design factors; design factors are design related features that assist in the management, design, development and assessment of products and/or services. In total, there are 70 design factors.

### **ID-TABLET**

CBM’s ID-TABLET focuses on project management and design. The project management entails problem solving, planning, evaluation, decision making and creativity. The areas under project management include: brainstorming (B1-B10), team (T1-T3), development (D1-D10), learners (L1-L10), assessments (A1-A4), and training (Tr1-Tr2). The project design focuses on monitoring and content development. The areas under project design include: inquiry (I1-I6) and elements (E1-E25) (See template in Appendix A). The template gives a brief outline of the ID-TABLET. If electronically accessible, the template would act as a database for the collection of information gathered about the target audience, the society or culture.

Below each area of the ID-TABLET is described and the corresponding design factors listed. This is followed by explanations of how to

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use this part of CBM and how this area connects to VIDLs and/or the designer.

### **Inquiry**

*Inquiry* (I1-I6) monitors development, automates the internal flow of the design process and functions as internal sensors. This monitoring checks and rechecks that the process is executing properly. It is interactive and always operational. Specifically, Inquiry provides a series of questions to be asked and answered during pre-production, production and post-production. These questions outline the design of the product and allow for a review of the product before, during and after production. The list of questions is not exhaustive; but they provide a broad selection of questions meant to focus on the needs of the target audience, enable the design process, and screen for bias. These questions are reviewed and reiterated throughout the design process to keep the design process active.

Inquiry is divided into six design factors:

- I1. Genre
- I2. Framing
- I3. Omission
- I4. Backgrounding
- I5. Foregrounding
- I6. Visual representations

The designer uses the Inquiry area by reviewing with the team the appropriate questions during points in the production process. These questions are reiterated throughout several meetings to bring the project back into alignment with its overall goal and limit bias. As the production evolves the design changes and many times the needs of the target audience gets lost in the process. These questions aid in keeping the team on track by assessing and reassessing the design process.

For the designer, using Inquiry provides a type of qualitative assessment in that the questions covered are those that an outside interviewer might

ask. Taken from this perspective, the questions are meant to provide an objective review of the design process.

### **Development**

*Development* (D1-D10) considers those features that are important in the overall development of the product. This area supports both new and existing products. Design specifications focus on determining features of a design that are technical, aesthetic, content, culture-based and/or target audience (TACCT) related. Then, the ICT format of the product is determined based on the design of the project; format options could include: Web-based, print, audio, software, video, etc. Other development considerations are to build a product that promotes efficiency, accessibility, and versatility. Multiple representations of culture are considered in particular environmental and individual/group cultures. Development focuses on creating a quality design that authentically represents the target audience and limits interference in the form of bias and misrepresentations. Throughout, the production process is supported by models.

The design factors include:

- D1. Consider technical, aesthetic, content, culture-based and target audience (TACCT) design specifications
- D2. Mass distribution formats
- D3. Effective technology
- D4. Diversify ICT format
- D5. Understand target audience
- D6. Explore environmental & individual/group cultures
- D7. Quality design
- D8. Authenticate product
- D9. Control for interference
- D10. Model the product or process

In using these factors, the designer determines the type of product they are creating using CARD.

For existing products, TACCT is used to determine the degree that the ICT is technical, aesthetic, etc. For new products, the other factors (D2-D10) of Development are considered. The designer methodically goes through each factor and gathers data, engages discussions, offers considerations, and makes the implementation of the product happen. Product validation and authentication are supported here.

Given that Development is an area where design specifications are strengthened, VIDLs could aid in supporting these areas. For example, Motschnig-Pitrik and Derntl (2005) developed person-centered e-learning (PceL; further developed as coUML, see Chapter IX) templates to help instructors with customizing web support in their online courses. This type of “user-centered customization process” seems a prudent path for VIDLs in education and e-learning (Motschnig-Pitrik & Derntl, 2005, p. 53) as the customization of technologies, personalized computers and individualized computer software are now common place (Kersten, Matwin, Noronha, & Kersten, 2000). The user-centered customization process complements CBM’s focus on the needs of a target audience because learning and instruction is culture- based and tailor made.

## **Team**

*Team* (T1-T3) focuses on the recruitment of a culturally sensitive design team that includes a cultural expert, an educator and other culturally informed members. These experts become a united team that seeks to fulfill the needs of the target audience as the most important goal.

The design factors include:

- T1. Cultural expert
- T2. Enlist educators
- T3. Culturally informed team

The designer uses the Team area to guide the hiring of the design team members and to further

educate the existing team about the target audience. These are non-traditional actions; as the design team engages in a somewhat comprehensive education of the target audience as specified under Training.

Fostering a team of highly skilled individuals (Gustafson & Branch, 2002) is extremely beneficial to the design process. The designer and design team prepares for the production process by recruiting an eclectic team of educators, designers and cultural informants. The selection of the appropriate team is key to the successful management, development and implementation of the project. Finding people who can work together in a culturally diverse work environment is important to culture-based designs. It is easy to gather a team of people to whom one is familiar. However, it may seem an imposition to let outsiders into ones circle. Designing for ethnically diverse learners requires designers to step outside of their normal comfort zone and challenge themselves to hear from others and listen to others outside their social circle. The input from the cultural expert, community representative and data from CBM elements is critical to educating the team and authenticating the product. All team members must have strong interests in meeting the needs of the target audience and a belief in the effectiveness of the product being developed.

## **Assessments**

The area of *Assessments* (A1-A4) covers several assessment options. *Multiple evaluation options* means that assessments can include internal and external evaluations that measure the learner’s acquisition of knowledge or the effectiveness of a products design. *Assess the assessment* examines the extent of bias and determines the best assessment to support the target audience. *External review* focuses on the hiring of an outside agency. *Culture specific assessments* advises on the building of culture specific evaluations and measurements.

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The design factors include:

- A1. Multiple evaluation opportunities
- A2. Assess the assessment
- A3. External review.
- A4. Culture specific assessments

The designer uses the assessments area to strengthen the validity of the design, provide evidence of the products effectiveness and to evaluate the goals set for the target audience. This area is a tool to check and balance design specifications.

Applying VIDLs to the area of assessments brings the type of visualization needed to determine learner feedback, product effectiveness and project improvements. Botturi's (2006; see also Chapter VII) educational environment modeling language (E<sup>2</sup>ML) is a VIDL used to create educational environments; E<sup>2</sup>ML proposes that visualizing aids in improving designs and communication between team members. E<sup>2</sup>ML blueprints the plan for instruction through document sets labeled as: goal definition, action diagrams and overview diagrams; this documentation could also detail a broader plan for assessment only. Given that E<sup>2</sup>ML supports project management by enabling quality checks it could be a useful tool in mapping evaluative processes.

### **Brainstorming**

*Brainstorming* (B1-B10) is conducted to align the project with its design team, assess the financial status of the project from conception and beyond its completion, discuss the overall design, implement preliminary assessments, and determine learning outcomes. This preproduction period can determine what parts of the project receive more or less emphasis given the financial situation and project due date. The design factors associated with brainstorming determine the direction to proceed and serves as an initial review of the design process.

The design factors include:

- B1. Financial support
- B2. Pilot studies/field tests of product
- B3. Assess community's response
- B4. Community representative on the team
- B5. Investigate target audience to authenticate product
- B6. Reflect and assess learning goals
- B7. Affordable design
- B8. Meet needs of target audience
- B9. Discuss & consider cultural context
- B10. Present & consider outcomes

The designer and the design team prepares for the production process by reviewing the design factors specified under Brainstorming. These areas are thoroughly discussed and actions taken to make sure that they are in place. Several brainstorming sessions may be needed. The collection of this information is important in meeting the needs of the target audience, limiting revisions and mistakes in the design process, and creating culture-based technological artifacts. According to Kelley and Hartfield (1996), brainstorming sessions offer the design team an opportunity to come up with ideas about the client's problem and most find these sessions interesting. The Brainstorming sessions with CBM should be more extensive as the needs of people will be the core of the discussion. Engaging in discussions that cover a breath of information, states Kelley and Hartfield (1996), takes more time in the preproduction stage but it saves time in the final stages of production.

### **Learners**

*Learners* (L1-L10) centers on the needs of learners and learning. These design factors assist in providing a dynamic learning environment that is supportive of the learner's cultural frames of reference and seeks to meet the instructional goals of the project. The design factors are adaptive to learners on multiple levels including intellectual,

motivational and educational; thereby providing opportunities for individualized instruction. Other design factors in this area focus on a variety of instructional strategies that focus on multiple points of learning such as: extending and differentiating learning, empowering and engaging learners, instilling proactive learning, identifying educational objectives, enculturating the learner, and incorporating culture based instructional strategies.

The design factors include:

- L1. Extend learning
- L2. Differentiate opportunities to learn
- L3. Empower & engage learners
- L4. Teach proactive learning
- L5. Identify educational objectives
- L6. Culture-specific instructional strategies
- L7. Enrich instructional content
- L8. Adapt instruction to learner
- L9. Plan for instruction
- L10 Enculturate the learner

In using Learners, the designer and the design team determines the type of learning environment they want to create. Then they decide which design factors would aid them the most in achieving these goals. The team again meticulously reviews the design factors and descriptions working through each one and returning to others as needed.

VIDLs aid in designs that adapt to learners needs (Gibbons & Brewer, 2005); this is the main goal of CBM learners. The design of instruction is tailored to adapt to the individual needs of the learner. Therefore, the learner is operating at an independent versus frustration level. The designer relies on constructivist theories of learning to guide the construction or improvement of the VIDL. VIDLs that seek to meet the needs of learners initially will require multiple avenues to complete the learning task. Because the path to learning is unique to each individual; however the conclusion could be the same. (That is, one learner may see the path to  $4 \times 4 = 16$  as one of

memorization. Another learner may have to visualize 4 objects 4 times is 16. Another learner uses their fingers as a counting tool to get the answer 16.) Therefore, CBM suggests extending learning, differentiating instruction, etc. to address the multiple modalities, cultural uniqueness (Gay, 2000), multiple intelligences (Gardner, 1999), and the diversity of learners. VIDLs can aid in creating these paths to learning because they allow for the replication and visualization of minute tasks (Gibbons & Brewer, 2005).

In addition, Gibbons and Brewer (2003, 2005) argue that layering VIDLs provides the designer with flexibility in the organization of design choices and economizes design processes. CBM is already multi-leveled therefore providing layered VIDLs to expedite instructional processes makes for a more efficient process, saves time and money on the project, and eases tasks for the designer.

## **Elements**

*Elements* (E1-E25) facilitate content development. These elements seek to be comprehensive in providing the fundamental total of which all culture is composed. The list of elements can be used to understand, define, or evaluate the target audience. The data developed around these elements provides authentic information about societies, cultures and peoples.

There are 25 design factors that include:

### **The Anthropology of Culture:**

- E1. Cultural aesthetics
- E2. Cultural artifacts
- E3. Cultural capital
- E4. Cultural classification
- E5. Cultural communications
- E6. Cultural demographics
- E7. Cultural environment
- E8. Cultural history
- E9. Cultural knowledge
- E10. Cultural language



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- E11. Cultural physiology
- E12. Cultural relations
- E13. Cultural resources

### **The Psychology of Culture:**

- E14. Cultural beliefs & values
- E15. Cultural experiences
- E16. Cultural ideas
- E17. Cultural identity
- E18. Cultural interests
- E19. Cultural misconceptions
- E20. Cultural ways

### **The Science of Culture:**

- E21. Cultural anomalies
- E22. Cultural cultures
- E23. Cultural futures
- E24. Cultural infinities
- E25. Cultural nature

Van Patten (1989) argues that instructional designs must have two things “(1) a set of elements that require designing and (2) a principle with which to organize them” (p 27). The elements meets the first specification through its set of design factors. In this case, the second principle is to focus on the needs of the target audience. In using the elements area, the designer and design team decides on the goals of the project and what information will be needed to understand the target audience and produce the product. The selection of Elements depends on time, money and the client’s goals.

An ethnographic study of a society would require an evaluation of their cultural elements. Who are the people we seek to study? What do they know? How did they come to be? From the 25 design factors, members of the design team engage in a collection of written and graphic data about the target group. This information is housed in a database or CBM guide accessible to all team members. The information gathered is not stereotypic but authentic representations of the target audience. Foucault, Russell, and

Bell (2004), with the goal of creating products, successfully implemented ethnographic methods in finding out about their target audience, Chinese consumers. This type of ethnographic data gathering is time consuming, as the inclusion of culture is not a simple task. There will be more initial preparation and education that will save time and costs later in the production process. However, consider the loss of creating a product that does not fulfill the needs of the target audience (Young, in press-b).

Applying VIDLs to the area of Elements can provide visual clarification to what could be a massive amount of data in terms of content development. The unified modeling language (UML) is a language used for designing and describing software systems. Designers using UML are encouraged to model before building. Therefore the sketching mode of UML could prove useful in visualizing the content development path needed in a culture-based design. In particular, the use of forward engineering involves drawing a UML diagram before writing code (Fowler, 2001). Some variation on this could prove useful in VIDLs focused on education.

## **Training**

Depending on whether it is an educational institution or business, the education of employees falls under the area of *Training* (Tr1-Tr2). Specifically, the people (e.g., instructors, employees, etc.) who will be using the product should receive Product Training as needed. These training sessions include culture-based training that provides instructors and employees with knowledge about the target audience based on elements and input from and interactions with the cultural expert.

The design factors include:

- Tr1. Product training
- Tr2. Culture-based training

The designer and/or design team uses the Training area to plan for the post-production handling of the product and educating the design team members about the target audience. If training materials have been prepared, their proper implementation would be followed up in this area. The design team engages in discussions and maintains a progress report of the product for future reference. The planning and implementation of training for the design team happens in this area. The designer and design team may not be involved in product training. However, this is an opportunity to learn about the product from the perspective of the instructor or practitioner who may be training learners to use the product. In addition to content, the organization and management of materials can be a part of this product training. The designer and design team participate in Culture-Based Training in order to receive a comprehensive knowledge of the target audience.

## **CONCLUSION**

Research in ID has explored improving and understanding learning and instruction (Jonassen, 1996, 2004; Reigeluth, 1983; Tennyson & Schott, 1997); however, there has been little focus on how culture is an integral component to learning and learners (Subramony 2004; Young, 2008, in press-a). This chapter has offered an alternative perspective to understanding culture and the nature of culture in design to give designers a creative position in which to address design and culture. The chapter proposed culture as an integral component to educating learners and to enhancing the design process. It further offered CBM as a culture-based ID framework for the design of ICTs and proposed VIDLs as support structures for ID frameworks. Culture in the design of ICTs is a complex task that is multi-leveled and multi-layered; and it is guided by designers ingenuity in creating or a researchers desire to discover. Manifesting culture is an explicit act.

There were several limitations in this chapter. First, CBM needs to be implemented by designers to validate its effectiveness as an ID framework. Although traditionally, ID frameworks have not been tested in terms of evaluations of their functionality or instructional outcomes, credibility and acceptance is gained through designers who choose to adapt and implement models (Gustafson & Branch, 2002). Second, given space limitations the comprehensive descriptions and explanations of CBMs ID-TABLET could not be covered; only an overview was provided in this chapter and some description in the CBM template.

## **ID Futures**

The future of ID will depend on innovators producing ideas. The inclusion of culture-based designs and VIDLs might engender such innovation. These concepts leave the door open for creative designers and researchers to seek original and imaginative designs to move the field of ID forward. The promotion of ID as a field of creators and builders can be the new future of ID.

Similarly this future of ID is dependent upon globalized learning and globalized thinking. Cheng (2002) argues that “globalized learning” means that learning is provided through many avenues including national and international resources. This type of learning provides access to instructional materials, educators, peers, and experts around the world (p. 14). Globalized thinking requires national and international researchers and designers to validate each others work, see connections in ideas, and collaborate across waters.

Integrating culture into the design of ICTs is not easy, but it is also not impossible. A commitment to a culture-based design means that designers are interested in creating a multitude of products from the generic or culture-neutral to the specialized or culture-specific. This commitment to the needs of the target audience is a move to globalize learning and thinking.

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Future questions might ask: How can designers begin to see culture as an integral part in the design of ICTs? If designers of VIDLs consider culture, how will this influence notation systems? Can the integration of culture change the way we see design? Ultimately, there may need to be changes in mindset to truly implement globalized learning. This book begins a new dialogue for ID futures and an avenue for international discourse.

## REFERENCES

- Banks, J. & Banks, C. (Eds.). (2003). *Handbook of research on multicultural education*. San Francisco: Jossey-Bass Publishers.
- Botturi, L. (2005). A framework for the evaluation of visual languages for instructional design: The case of E<sup>2</sup>ML. *Journal of Interactive Learning Research, 16*(4), 329-351.
- Botturi, L. (2006). E<sup>2</sup>ML: A visual language for the design of instruction. *Educational Technology Research & Development, 54*(3), 265-293.
- Botturi, L., Derntl, M., Boot, E., & Figl, K. (2006). *A classification framework for educational modeling languages in instructional design*. Paper presented at the Proceedings of The 6<sup>th</sup> IEEE International Conference on Advanced Learning Technologies, Kerkrade, The Netherlands (pp. 1216-1220).
- 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.
- Cheng, Y. C. (2002). *New paradigm of borderless education: Challenges, strategies, and implications for effective education through localization and internationalization*. Paper presented at the International conference on learning & teaching: Challenge of learning and teaching in a Brave New World: Issues and opportunities in borderless education, Hatyai, Thailand.
- Chu, G., & Reeves, T. C. (2000). *The relationship between cultural differences among American and Chinese university students and the design of personal pages on the World Wide Web*. New Orleans, LA: Paper presented at the annual meeting of the American Educational Research Association.
- Condon, J. C., & Yousef, F. S. (1975). *An introduction to intercultural communication*. Indianapolis, IN: Bobbs-Merrill Educational Publishing.
- D'Andrade, R. (1990). Some propositions about the relations between culture and human cognition. In J. W. Stigler, R. A. Shweder, & G. Herdt (Eds.), *Cultural psychology: Essays on comparative human development* (pp. 65-129). New York, NY: Cambridge University Press.
- Douglas, I. (2006). Issues in software engineering of relevance to instructional design. *Tech Trends, 50*(5), 28-35.
- Edmundson, A. (2007). The Cultural Adaptation Process (CAP) Model: Designing e-learning for another culture. In A. Edmundson (Ed.), *Globalized e-learning cultural challenges* (pp. 267-290). Hershey, PA: Information Science Publishing.
- Foucault, B. E., Russell, R. S., & Bell, G. (2004, April 24-29). *Techniques for research and designing global products in an unstable world: A case study*. Paper presented at the Computer Human Interaction, Vienna, Austria.
- Fowler, M. (2001, June 29). *Put your process on a diet*. Retrieved April 1, 2007, from <http://www.ddj.com/dept/architect/184414675>
- Gardner, H. (2000). *Intelligence reframed: Multiple Intelligences for the 21<sup>st</sup> Century*. New York: Basic Books.
- Gay, G. (2000). *Culturally responsive teaching*. New York: Teachers College Press.
- Geertz, C. (1973). *The interpretation of cultures*. New York: Basic Books.

- Gibbons, A. S. (2003). What and how do designers design?: A theory of design structure. *TechTrends*, 47(5), 22-27.
- Gibbons, A. S., & Brewer, E. K. (2005). Elementary principles of design languages and design notation systems for instructional design. In J. M. Spector, C. Ohrazda, A. VanSchaack, & D. A. Wiley (Eds.), *Innovations in instructional technology* (pp. 111-129). Mahwah, NJ: Lawrence Erlbaum Associates.
- Gray, A., & McGuigan, J. (1997). Introduction. In A. Gray & J. McGuigan (Eds.), *Studying culture: An introductory reader* (pp. xi-xv). New York: Arnold, A member of the Hodder Headline Group.
- Gustafson, K. L., & Branch, R. M. (2002). *Survey of instructional development models*. Syracuse, NY: ERIC Clearinghouse On Information & Technology.
- Hall, E. T. (1966). *The hidden dimension*. Garden City, NY: Doubleday.
- Hall, E. T. (1976). *Beyond culture*. New York: Double Day.
- Hall, E. T. (1983). *The dance of life: The other dimension of time*. Garden City, NY: Anchor Press/Doubleday.
- Hall, S. (1996). Cultural studies and its theoretical legacies. In D. Morley & K.-H. Chen (Eds.), *Critical dialogues in cultural studies* (pp. 262-275). London: Routledge.
- Hall, S. (1997). Minimal selves. In A. Gray & J. McGuigan (Eds.), *Studying culture*. London: Arnold, a member of the Hodder Headline Group.
- Hall, P., & Hudson, R. (1997). *Software without frontiers: A multi-platform, multi-cultural, multi-nation approach*. New York: John Wiley & Sons, Ltd.
- Henderson, L. (2007). Theorizing a multiple cultures instructional design model for e-learning and e-teaching. In A. Edmundson (Ed.), *Globalized e-learning cultural challenges* (pp. 130-153). Hershey, PA: Information Science Publishing.
- Henderson, L. (1996). Instructional design of interactive multimedia: A cultural critique. *Education Technology Research and Development*, 44(4), 85-104.
- Hofstede, G. (1980). *Cultures consequences: International differences in work related values*. Beverly Hills, CA: Sage Publications.
- Hofstede, G. (1991). *Cultures and organizations: Software of the mind*. London: McGraw Hill Book Company.
- Horton, W. (2005). Graphics: The not quite universal language. In N. Aykin (Ed.), *Usability and internationalization of Information Technology* (pp. 157-188). Mahwah, NJ: Lawrence Erlbaum & Associates Publishers.
- Javidan, M., & House, R. J. (2001). Cultural acumen for the global manager: Lessons from Project GLOBE. *Organizational Dynamics*, 29(4), 289-305.
- Jonassen, D. H. (Ed.). (1996). *Handbook of research for educational communications and technology*. New York: Macmillian Library Reference USA.
- Jonassen, D. H. (Ed.). (2004). *Handbook of research on educational communications and technology*. Mahwah, NJ: Lawrence Erlbaum Associates, Inc.
- Kelley, D., & Hartfield, B. (1996). The designer's stance. In T. Winograd (Ed.), *Bringing design to software* (pp. 151-164). New York: ACM Press.
- Kersten, G. E., Matwin, S., Noronha, S. J., & Kersten, M. A. (2000). *The software for cultures and the cultures in software*. Paper presented at the European Conference on Information System ECI2000, Vienna, Austria.

## The Culture Based Model

- Kress, G., & VanLeeuwen, T. (2006). *Reading images: The grammar of visual design* (2nd ed.). London: Routledge.
- Kroeber, A. L., & Kluckhohn, C. (1966). *Culture: A critical review of concepts and definitions*. New York: Vintage Books.
- Lee, C. D. (2003). Toward a framework for culturally responsive design in multimedia computer environments: Cultural modeling as a case. *Mind, Culture and Activity*, 10(1), 42-61.
- Motschnig-Pitrik, R., & Derntl, M. (2005). Can the web improve the effectiveness of person-centered learning?: Case study in web engineering and beyond. *IASIS International Journal of WWW/Internet*, 2(1), 49-62.
- Powell, G. C. (March/April 1997). Understanding the language of diversity. *Educational Technology*, 37(2), 15-18.
- Quinn, N. (1987). Convergent evidence for a cultural model of American marriage. In D. Holland & N. Quinn (Eds.), *Cultural models in language & thought* (pp. 173-192). New York: Cambridge University Press.
- Reigeluth, C. M. (Ed.). (1983). *Instructional-design theories and models: An overview of their current status*. Hillsdale, NJ: Lawrence Erlbaum Associates, Publishers.
- Rheinfrank, J., & Evenson, S. (1996). Design languages. In T. Winograd (Ed.), *Bringing design to software* (pp. 63-80). New York: ACM Press.
- Schank, R., & Abelson, R. (1977). *Scripts, plans, goals, and understanding: An inquiry into human knowledge structures*. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Scheel, N. P., & Branch, R. C. (August 1993). The role of conversation and culture in the systematic design of instruction. *Educational Technology*, 33, 7-18.
- Subramony, D. P. (July/August 2004). Instructional technologists' inattention to issues of cultural diversity among learners. *Educational Technology*, 19-24.
- Taylor, D. (1992). *Global software: Developing applications for the international market*. New York, NY: Springer.
- Tennyson, R. D., & Schott, F. (1997). Instructional design theory, research, and models. In R. D. Tennyson, F. Schott, N. M. Seel, & S. Dijkstra (Eds.), *Instructional design international perspectives* (Vol. 1, pp. 1-16). Mahwah: Lawrence Erlbaum Associates, Publishers.
- Tessmer, M. & Wedman, J. (1995). Context-sensitive instructional design models: A response to design research, studies and criticism. *Performance Improvement Quarterly*, 8(3) 38-54.
- Thomas, M., Mitchell, M., & Joseph, R. (2002). The third dimension of ADDIE: A cultural experience. *Tech Trends*, 46(2), 40-45.
- Triandis, H. C. (1989). The self and social behavior in differing cultural contexts. *Psychological review*, 96(3), 506-520.
- Triandis, H. C. (1995). *Individualism and collectivism*. Boulder, CO: Westview Press.
- Triandis, H. C., & Gelfand, M. J. (1998). Converging measurement of horizontal and vertical individualism and collectivism. *Journal of Personality and Social Psychology*, 74(1), 118-128.
- Trompenaars, F., & Hampden-Turner, C. (1998). *Riding the waves of culture*. New York: McGraw-Hill Companies, Inc.
- Van Patten, J. (1989). What is instructional design? In K. A. Johnson & L. J. Foa (Eds.), *Instructional design: New alternatives for effective education and training* (pp. 16-31). New York: National University Continuing Education Association.



Williams, R. (1958). Culture is ordinary. In N. McKenzie (Ed.), *Convictions* (pp. 74-92). London: MacGibbon and Kee.

Williams-Green, J., Holmes, G., & Sherman, T. (1997-1998). Culture as a decision variable for designing computer software. *Journal of Educational Technology*, 26(1), 3-18.

Winograd, T. (1996). Introduction. In T. Winograd (Ed.), *Bringing design to software* (pp. xiii-xxv). New York: ACM Press.

Young, P.A. (in press-a). Integrating culture in the design of ICTs. *British Journal of Educational Technology*.

Young, P. A. (in press-b). The culture based model: constructing a model of culture. *Education, Technology & Society Journal*.

Young, P.A. (1999). *Roads To Travel: A historical look at African American contributions to instructional technology*. Unpublished Dissertation, University of California Berkeley, Berkeley, CA.

Young, P. A. (2001). Roads to travel: A historical look at The Freedman's Torchlight—An African American contribution to 19<sup>th</sup> century instructional technologies. *Journal of Black Studies*, 31(5), 671-698.

Young, P. A. (2008). Exploring culture in the design of new technologies of literacy. In J. Coiro, M. Knobel, C. Lankshear & D. J. Leu (Eds.), *Handbook of research on new literacies*. London: Routledge.

## **APPENDIX: CULTURE BASED MODEL, ID-TABLET TEMPLATE**

The following template should be used as the shell structure of a database to input information into each category. CBM's ID-TABLET consists of 70 design factors focused on project management and design. The project management entails problem solving, planning, educating, evaluating, learning, and decision making. The areas under project management include: *brainstorming* (B1-B10), *team* (T1-T3), *development* (D1-D10), *learners* (L1-L10), *assessments* (A1-A4), and *training* (Tr1-Tr2). The project design focuses on monitoring and content development. The areas under project design include: *inquiry* (I1-I6) and *elements* (E1-E25). These areas operate simultaneously; they maintain an interactive relation in that certain steps are repeated or referred back to throughout the design process. Thus, the process is always in motion—something is always happening.

### **Inquiry**

Inquiry (I1-I6) monitors development, automates the internal flow of the design process and functions as internal sensors. It provides a series of questions to be asked and answered during pre-production, production and post production.

- I1. **Genre:** Aids in the selection of ICTs.
  - I1a. *What ICTs are being used and why?*
  - I1b. *Which ICTs are more effective given the content?*
  - I1c. *Is the project affordable to the target audience, given the ICTs used?*
  - I1d. *How have ICTs influenced the design of the product?*
- I2. **Framing:** Assists in maintaining the target audiences perspective.
  - I2a. *Who is the target audience?*
  - I2b. *How is the content presented to the target audience?*
  - I2c. *What is the content presented?*
  - I2d. *Is the content appropriate for the target audience and why?*
  - I2e. *Where, within the products design, is this content most appropriate?*
  - I2f. *Why is this content appropriate?*
- I3. **Omission:** Helps in assessing a design.
  - I3a. *What has been intentionally omitted and why?*
  - I3b. *What has been unintentionally omitted and why?*
  - I3c. *What has not been considered?*
  - I3d. *Will these omissions be detrimental to the project and why?*
- I4. **Backgrounding:** Helps in providing a balanced design.
  - I4a. *What has been backgrounded?*
  - I4b. *Is the backgrounding intentional or unintentional and why?*
  - I4c. *Will this backgrounding be detrimental to the project?*
- I5. **Foregrounding:** Helps in providing an objective design.
  - I5a. *What is emphasized and why?*
  - I5b. *Is this what should be emphasized?*
  - I5c. *How does this emphasis influence the overall design?*

- I6. **Visual representations:** Assists in conveying meaning.
  - I6a. *How do the visual representations frame the product?*
  - I6b. *How do visual representations assist in the instructional process?*
  - I6c. *Who is portrayed in these visual representations?*
  - I6d. *What is portrayed in these visual representations?*
  - I6e. *What purpose do the visual representations serve?*
  - I6f. *Are inappropriate visual representations in the design?*
  - I6g. *Where are these visual representations placed in the product?*
  - I6h. *Why were these visual representations selected?*

## **Development**

Development (D1-D10) provides the management structure for problem solving. It considers those features that are important in the overall development of the product.

- D1. **Consider technical, aesthetic, content, culture-based and target audience (TACCT) design specifications:** Technical design specifications focus on technical (functional), aesthetic (visual), content (subject matter), culture-based (generic or specialized), and target audience (people).
- D2. **Mass distribution formats:** Produce in formats for mass distribution that allow access and equity.
- D3. **Effective technology:** Use the most efficient and effective technology available to produce the product.
- D4. **Diversify ICT format:** Provide multiple forms of information and communication technologies or manipulatives to meet the needs of the target audience.
- D5. **Understand target audience:** Know your audience. Focus on that audience throughout the design.
- D6. **Explore environmental & individual/group cultures:** Environmental cultures explore societies and cultures ways of life (e.g., workplace). Individual/group cultures explore people (e.g., Japanese culture).
- D7. **Quality design:** Create a good product for other people who desire to create similar products
- D8. **Authenticate product:** Authentic representations of target audiences are needed to validate the product.
- D9. **Control for interference:** Provide products that limit bias, attitudes and prejudices. Try to control for human, machine and environmental interference.
- D10. **Model the product or process:** Create prototypes, sketches, storyboards or visual languages.

## **Team**

Team (T1-T3) focuses on the recruitment of a culturally sensitive design team that includes a cultural expert, an educator and other culturally informed members. This is where much of the decision making happens.

- T1. **Cultural expert:** The cultural expert is the insider who acts as a liaison with the target audience and community representative.
- T2. **Enlisted educators:** Educators with expertise in subject matter and/or educating the target audience must be enlisted on the team (e.g., professors, teacher educators, etc.).

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T3. **Culturally-informed team:** Have an educated creative team with valid interests in the target audience.

### **Assessments**

The area of assessments (A1-A4) covers assessment options. These assessments provide evidence of the products effectiveness and evaluate the goals set for the target audience.

A1. **Multiple evaluation opportunities:** Provide internal and external evaluation opportunities.

A2. **Assess the assessment:** Evaluate the evaluation tools.

A3. **External review:** Implement other evaluations of the product.

A4. **Culture specific assessments:** Create specialized evaluations.

### **Brainstorming**

Brainstorming (B1-B10) determines the direction to proceed and serves as an initial review of the design process. It is the first step in planning.

B1. **Financial support:** Obtain comprehensive funding for the project.

B2. **Pilot studies/field tests of product:** Engage in assessments throughout project.

B3. **Assess community's response:** Get the public's response to the product.

B4. **Community representative on team:** The Community Representative is a person versed in the cultural nuances of the target audience, and they have been designated as an integral part of the design team.

B5. **Investigate target audience to authenticate product:** Provide the team with an ethnographic portrait of the target audience.

B6. **Reflect and assess learning goals:** Engage in ongoing reflections and assessments of the product.

B7. **Affordable design:** Provide an affordable design and ICTs that are financially accessible to the target audience.

B8. **Meet needs of target audience:** Determine how the product meets the instructional and/or cultural needs of the target audience.

B9. **Discuss & consider cultural context:** Discuss and consider historical, social, political, economic and educational reasons for implementing this project.

B10. **Present & consider outcomes:** Throughout the design process, present and consider learner outcomes or the user goals.

### **Learners**

Learners (L1-L10) centers on the needs of learners and learning. These design factors assist in providing a dynamic learning environment that is supportive of the learner's cultural frame of reference.

L1. **Extend learning:** Provide opportunities for extended learning.

L2. **Differentiate opportunities to learn:** Provide a variety of learning options.

L3. **Empower & engage learners:** Provide opportunities for empowering learners and engaging instruction.

- L4. **Teach proactive learning:** Help learners to be proactive in improving their own learning
- L5. **Identify educational objectives:** Have an underlying educational and/or learning objective
- L6. **Culture-specific instructional strategies:** Consider instructional strategies that are individual or group specific
- L7. **Enrich instructional content:** Expand instructional content beyond subject matter.
- L8. **Adapt instruction to learner:** Provide adaptable instruction that is not too grade level or age level specific.
- L9. **Plan for instruction:** Focus on the short and long term instructional needs of the target audience.
- L10. **Enculturate the learner:** Use the product to enculturate the learner into the culture.

## **Elements**

Elements (E1-E25) facilitate content development. These elements seek to be comprehensive in providing the fundamental total of which all culture is composed.

### The Anthropology of Culture:

- E1. **Cultural aesthetics:** That which is considered beautiful
- E2. **Cultural artifacts:** Products that exist or remain
- E3. **Cultural capital:** Economics and material wealth
- E4. **Cultural classification:** Divisions in a culture or society
- E5. **Cultural communications:** The exchange or transmission of information
- E6. **Cultural demographics:** Characteristics of a population
- E7. **Cultural environment:** Physical and social conditions in which human beings, other species or entities live and develop
- E8. **Cultural history:** Narrative representation of historical events
- E9. **Cultural knowledge:** What is known and what one comes to know
- E10. **Cultural language:** Language form, content, use and meaning
- E11. **Cultural physiology:** The physiological characteristics of a human being, other species or entity
- E12. **Cultural relations:** The relationship of one being to another being
- E13. **Cultural resources:** The use and cultivation of resources

### The Psychology of Culture:

- E14. **Cultural beliefs & values:** Beliefs (shared truths); values (shared ideas)
- E15. **Cultural experiences:** The interpretation of the world from inside and out
- E16. **Cultural ideas:** The use and meaning of ideas and perceptions
- E17. **Cultural identity:** Distinguishing qualities of a human being, other species or entity
- E18. **Cultural interests:** Deeply personal desires, wants, wishes
- E19. **Cultural misconceptions:** Untruths, myths, stereotypes
- E20. **Cultural ways:** Behaviors, norms, feelings



## ***The Culture Based Model***

### The Science of Culture:

- E21. **Cultural anomalies:** Happenings that promote, initiate, or force cultural change
- E22. **Cultural cultures:** The scientific identification of cultures, worlds, ecosystems
- E23. **Cultural futures:** That which is to come
- E24. **Cultural infinities:** Those things without limits: time, space, distance
- E25. **Cultural nature:** Intrinsic characteristics of a human being, other species or entity

### **Training**

Training (Tr1-Tr2) is the education of individuals. This is another phase in providing full management of a project.

- Tr1. **Product training:** Provide training of the product as needed.
- Tr2. **Culture-based training:** Provide training that is culture-based incorporating CBM Elements and interactions with cultural expert and target audience.