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The Impact of Cultural Assumptions about Technology on Choctaw Heritage Preservation and Sharing

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ABSTRACT

Neither the effects of information and communication technology (ICT) on culture nor the cultural roles of ICT are widely understood, particularly among marginalized ethno-cultures and indigenous people. One theoretical lens that has received attention outside of Native American studies is the theory of Information Technology Cultures, or “IT Culture,” developed by Kaarst-Brown. This theory was a groundbreaking and foundational way to understand underlying assumptions about IT and the conflicts surrounding IT use. Kaarst-Brown identified five archetypal cultural patterns or sets of “underlying cultural assumptions” about IT that impacted strategic use, conflict, and technology innovation. These dimensions included assumptions about the control of IT, criticality of using IT, value of IT skills, justification of IT investments, and perceived beneficiaries of IT. These dimensions clustered in five archetypal patterns: the Fearful, Controlled, Revered, Demystified, and Integrated IT Culture.

The research study described in this thesis builds on Kaarst-Brown’s work. This thesis determines the appropriateness and fit of the IT Culture theory and pervasiveness of archetypal patterns within a Native American tribe—the Choctaw Nation of Oklahoma. A mixed-method design, rather than traditional ethnography, is used to explore evidence of Kaarst-Brown’s five cultural patterns and their dimensions within the Choctaw Nation. By extending this theoretical lens and utilizing a mixed-method approach, this thesis research contributes to an understanding of the assumptions about technology within a subset of culturally respected Choctaw families.

This thesis project highlights the challenge of applying a broad IT theory to a specific ICT and context. Even though there was not 100% correlation between the theoretical lens and the data gathered, this theoretical application yielded valuable results. These results offered insights into the

nature of the assumptions about ICT found in a multi-generational subset of people, and potential implications for future ICT development. Choctaws deeply invested in the Tribe's cultural heritage preservation and sharing efforts can now understand the potential impact of ICT *before* a new ICT is even introduced, rather than after the fact. Also while the original IT Culture theory utilized metaphor and symbols to explain the archetypal patterns, this thesis interpreted a new set of symbols from Choctaw folklore better suited to describe assumptions about ICT within the specific ethno-cultural context.

In this project, the researcher is a non-Native American embedded in a community of a once-marginalized and long-suffering Native people, and thus, special considerations are discussed. The Choctaw have found their voice in contemporary society and are passionately asserting their self-determination as a proud Nation. As such, this thesis concludes with a discussion of practical implications for the Choctaw Nation of Oklahoma, as well as implications for Native American, ICT, and mixed-method research.

**THE IMPACT OF CULTURAL ASSUMPTIONS ABOUT TECHNOLOGY
ON CHOCTAW HERITAGE PRESERVATION AND SHARING**

by

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Dissertation

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Doctor of Professional Studies in Information Management

Syracuse University

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CHAPTER I. INTRODUCTION

Human beings are storytelling organisms, and we all live storied lives. Stories are ways we connect, describe, discover, and share aspects of our existence. Researchers will from time to time find themselves in an opportunity where stories are present—whether the narrative plays out before them or is an account of some past experience. The experiences of the people within the context of those stories have effects on research work, and if the researcher happens to be an ethnographer or is operating from an interpretive paradigm in any capacity, those experiences and contexts matter very much. As a doctoral student, I became involved in a story that presented an undeniably important research problem—one with unique challenges and implications to me as a researcher and the organization where I worked. As a professional, I am the senior leader of information management and research at the Choctaw Nation of Oklahoma—the third-largest Federally-recognized Native American tribe in the United States. However, I am *not* a Native American. Yet the Tribal leaders invited me to be involved in a project considered vitally important to the Tribe—the preservation and sharing of Choctaw cultural heritage and stories using information and communication technology (ICT).

In 2012, the *Chabta* Foundation, a non-profit organization affiliated with the Choctaw Nation of Oklahoma, recorded the stories of female elders and their experiences at Wheelock Academy, a former boarding school for Choctaw girls. One elder Choctaw woman, Mary Edna Watson, recounted her experience at the school:

When I first came to the school, I couldn't understand anything they were saying in English, and I didn't want to speak, because I couldn't understand them anyway. So I just kept quiet. And I got in trouble all the time, because I wouldn't talk English. The thing was I didn't know! And I'd get punished, and I wondered why I got punished... I was put in closets. I was paddled. At night, I was put in the halls and a line was drawn up higher than I could stand. You had to tiptoe, but you couldn't get your finger away from that line. 'Cause they'd come along, if you dipped down just a little, they'd paddle you. I do know those things happened, and I know why. The discipline wasn't what was bad. It was why I was being punished. It was because they didn't want me to talk Choctaw. And now they want me to teach everybody else that. They shouldn't have taken it away from us! I don't regret it. I don't hold any animosity. I can tell my story and laugh about it. That's just part of life. Because of it I can now adapt and change (*Interview of Choctaw elder M. E. Watson, 2012*).

Christian missionaries established the Wheelock Academy, where Ms. Watson and many other Choctaw girls attended school, in 1832 soon after the Trail of Tears¹. It closed over a century later in 1955. From all accounts, Wheelock was a place of mixed emotions. Operated by the Bureau of Indian Affairs from 1932 until it closed, Wheelock was not always a happy place for its residents. Teachers and administrators prohibited the use of the girls' native Choctaw language. According to many accounts like the one above, many girls were punished for even speaking in their native tongue (Weibel-Orlando, 1999, p. 226). Also, the girls who attended Wheelock were very poor, and food was sometimes scarce. Along with the fact that they were separated from their families, life at Wheelock was difficult for these young Choctaw women. A small group of Wheelock alumni are still alive, and the Tribe is interested in preserving and sharing their stories with the next generation of Choctaws before the few Wheelock alumni who remain pass away and their stories disappear.

¹ The "Trail of Tears" refers to the Choctaw removal from their native lands in Mississippi and Alabama following the Indian Removal Act of 1830.

The *Chahta* Foundation has as one of its principle aims to preserve Choctaw culture. They began a project to record in digital audio the stories of Choctaws from culturally respected families, such as former Wheelock students. A method pioneered by StoryCorps² inspired this project and involves interviews between two people who already know each other very well, such as family or friends, as a trained facilitator guides participants through the interview process. The *Chahta* Foundation's intent is to recruit Choctaw elders, along with their friends and family members, and record as many stories as possible. This is the larger story in which I find myself immersed as a researcher.

The Research Problem

Through my interactions with the community as a researcher and employee of the Tribal government over the past seven years, I have observed the Choctaw as having an active and vibrant culture. The Tribe increasingly supports social and public displays of cultural activities. Evidence of efforts to foster Choctaw culture are seen at the organizational level by a multitude of special events and festivals, language classes, traditional dance expositions, organized sporting competitions, arts and craft demonstrations and workshops, just to name a few. However, the heart of Choctaw culture is its people. Choctaw culture is fluid, dynamic, and centered on shared histories and values as it becomes more widely and openly expressed.

The *Chahta* storytelling project is the first major organized effort to involve ICT in a Choctaw heritage project. This being the case, the Chief of the Tribe, Gregory E. Pyle, and the *Chahta* Foundation asked me to be involved. As a senior leader of the Tribe's research and information management department, I was asked by Tribal leaders to help them understand how to proceed. Largely, the Tribe has not utilized ICT in this manner before.

² StoryCorps is a non-profit organization that records, preserves, and shares stories of Americans, archives them at the American Folklife Center at the Library of Congress, and features segments of them on National Public Radio. Neither this research project nor the *Chahta* storytelling project is affiliated with StoryCorps.

A research problem stood out as I considered how the use of technology would impact Choctaw culture. I am not a Choctaw, nor even a Native American. The culture of the Choctaw people is not my own, and while I have been granted the privilege of working for and among them, I dare not pretend that I understand Choctaw culture. I made the distinction that the cultural background I bring with me—as a white, middle-class, educated American—is different than the background of many Choctaw. Would a traditional Choctaw stand in a line outside of an urban Apple™ retail store to purchase the latest iPad™ or other gizmo? How would a traditional Choctaw feel about seeing a sacred ritual on YouTube™? Given the size of the Choctaw Nation (over 200,000 members worldwide), are their opinions about the role of ICT in cultural heritage preservation diverse? Are there cultural differences that would impact the use or acceptance of an ICT to preserve and share Choctaw culture? Homi K. Bhabha expressed the concern of cultural difference and conflicts that might occur because of different expectations for progress in areas such as technology.

The borderline engagements of cultural difference may as often be consensual as conflictual; they may confound our definitions of tradition and modernity; realign the customary boundaries between the private and the public, high and low; and challenge normative expectations of development and progress. (1994, p. 3)

As a researcher, I find myself at such a boundary—not just of a mainstream, technology-dependent culture versus a Native culture, but also an academic culture in the information field that possesses “normative expectations of development and progress,” such as open access and sharing of information and a dismantling of the digital divide³. Not only that, I am also in the middle of an intriguing story embedded within a rich socio-cultural context. This story comprises very personal experiences from Choctaw who are proud, passionate, and protective of their cultural identity. One can easily perceive the gravity of this research problem of how ICT might impact Choctaw cultural

³ The digital divide can be defined as a conceptual boundary between people who have and use technology and those who do not. This topic will be briefly considered again in the next chapter.

sharing and preservation. Considering potential cultural differences between the Choctaw and the average American, I seek to understand the attitudes and beliefs held by the Choctaw people in regards to technology. While most Choctaw use ICT in their everyday lives, no ICT is being used in regards to their cultural heritage in a consistent, pervasive, or integrated way within the Tribal communities.

Prior to this thesis study, the cultural attitudes and beliefs—defined by Schein (1990) as underlying assumptions—about ICT identifiable within the Choctaw people were unknown. The research study is guided primarily by the following research problem:

How might underlying cultural assumptions about information and communication technologies (ICT) potentially affect the role of ICT in Choctaw heritage preservation and sharing?

These assumptions are shown by this study to have key implications for the potential role of an ICT for the purpose of Choctaw cultural heritage preservation and sharing. As a doctoral candidate at Syracuse University's School of Information Studies, I chose this research problem to be the focus of my thesis research. The investigation of this research problem led to the development of a research design and specific questions.

Overview of the Research Project

To address the aforementioned research problem of the impact of ICT on Choctaw cultural preservation and sharing, a thesis proposal was developed and approved by my thesis committee. The project was then carried out, and the results culminate in this thesis document. Before delving into the details of this research project and how it was developed, I must give an overview of key aspects and introduce the primary research questions addressed by this thesis.

Overview of the Selected Theory

I begin the inquiry into this research problem by reviewing the literature. As will be shown in detail in the next chapter, a gap in an understanding of Native American culture and the role of an ICT is clearly signaled. Faced with this gap, the need to select a theoretical lens through which to view the research problem became clear.

A key theme in this research from the beginning was culture. Drawing from a foundational piece literature by Schein (1990), culture is conceptualized as a pattern of basic assumptions found in a group as it copes with problems and adapts to change. Often, these coping mechanisms and adaptations become entrenched as the proper attitudes and beliefs to possess—such that these assumptions become the “right way” to face problems and change. Using an ICT to preserve, and possibly even share, the Choctaw’s cultural heritage represents a change for a culture that traditionally values togetherness through tight-knit families. In comparison, Choctaw social structures appear quite different from the technology driven, mobile, and virtually connected social structures of modern mainstream American life. This research project considered that Choctaw assumptions about ICT might differ from those of average mainstream Americans. Will Choctaw cultural beliefs and attitudes about technology affect the role of an ICT that intersects with cultural heritage preservation—an activity that touches their core identity?

The impact of ICT on culture and the cultural roles of ICT are not widely known, particularly among Native Americans (Dyson, Hendriks, & Grant, 2007; Roy & Raitt, 2003). To understand Choctaw culture in relation to ICT, a theoretical lens was sought after. One theoretical framework that has received considerable attention is the theory of Information Technology Cultures, or “IT Culture,” which was initially developed by Kaarst-Brown (1995) and extended (1999; Kaarst-Brown, 2005). This theory was ground-breaking in regards to understanding underlying assumptions about information technology (IT) and the conflicts surrounding IT use

(Leidner & Kayworth, 2006). Kaarst-Brown (1995, 2005) identified five dimensions or sets of “underlying cultural assumptions” about ICT that impacted use, conflict, and innovation. These dimensions were assumptions about the control of ICT, importance of using ICT, value of ICT skills, justification of ICT investments, and perceived beneficiaries of ICT. These dimensions clustered into five archetypal patterns: the Fearful, Controlled, Revered, Demystified, and Integrated IT Cultures. Kaarst-Brown also used the metaphor of magic and mystery inherent in ICT to illustrate and illuminate an understanding of the five archetypal IT cultural patterns. After a careful investigation of other potentially appropriate theories, IT Culture theory is selected over others. Thus, an important task of this thesis is to ascertain the appropriateness and fit of the IT Culture theory and pervasiveness of archetypal patterns within people of the Choctaw Nation of Oklahoma. The fit of theory within the Choctaw context is determined through a carefully selected methodological design.

Overview of the Selected Methodology

In creating the research design, I selected a methodology that would be appropriate for both the IT Culture theory and the Choctaw context. These methodological decisions resulted in a mixed-method design to explore the existence of Kaarst-Brown’s (1995, 2005) five cultural patterns and their dimensions within the Choctaw. The design consists of a nested concurrent strategy where quantitative survey questions were asked during qualitative structured interview sessions with key informants. The reasons for this are discussed in this thesis (starting on page 78). By extending IT Culture theory and utilizing this mixed-method approach, this thesis contributes to an understanding of the underlying assumptions about ICT found in a subset of families of the Choctaw Nation.

Therefore, the intent of this methodological design is to understand the research problem by collecting and converging data at multiple levels—some deep, detailed data along with some broader trended data—to uncover and measure the nature and pervasiveness of assumptions about

technology found in Choctaw families. This study recognizes the inclusion of voices that have been silenced, misrepresented, or marginalized—as is necessary for rigorous transformative research (Mertens, 2003). The Choctaw voice has been largely ignored in the past. Allowing their voice to be heard on this current issue of ICT intermixing with their culture is important. Also, it is shown how I, as a non-Native researcher, gained access to this Native population by building trust, mutual respect, and relationships. The research design, along with the selected theoretical framework, culminates in the guiding research questions to be answered.

The Research Questions

The driving motivation of this research study is to gain insights about the Choctaw people and their assumptions of ICT's. These insights are critical now *before* a new ICT is introduced, rather than after the fact and its potential consequences are realized. With these insights, the Choctaw can better anticipate if or how ICT should be utilized in their cultural heritage preservation and sharing efforts. This thesis has three research goals associated with this larger problem: 1) to explore the *appropriateness and fit of the IT Culture theory* with the Choctaw Nation of Oklahoma; 2) to *develop insights for future ICT development and adoption* among the Choctaw related to cultural heritage preservation and sharing; and 3) to *explore the use of a mixed-methods approach* to apply the IT Culture theory.

Subsequently, these three research goals can be translated into the primary research questions that are addressed by this thesis research:

- 1. How appropriate is and how well does the IT Culture theory fit in an ethno-cultural context such as the Choctaw Nation of Oklahoma?**
- 2. What are the implications of Choctaw IT Culture on future ICT development and adoption among the Choctaw related to cultural heritage preservation and sharing?**
- 3. How well does a mixed-methods approach apply the IT Culture theory, as opposed to the original ethnographic design used by Kaarst-Brown (1995)?**

These questions are all addressed by this research project. As will be shown in the concluding chapter to this thesis, the research project provides insights into the nature of the assumptions about ICT found in a multi-generational subset of Choctaw people and potential implications for future ICT development to help with the Tribe's cultural heritage preservation and sharing efforts. In addition, Kaarst-Brown's (1995, 2005) IT Culture theory utilized the metaphor of magic to understand the archetypal patterns of assumptions about ICT. As such, an interpretation of the data and Choctaw folklore revealed a new set of symbols better suited to describe the IT Culture archetypal patterns in terms more meaningful for the Choctaw.

Also, the researcher as a non-Native discusses considerations made when conducting this research with a once-marginalized and long-suffering Native people. The Choctaw have found their voice in contemporary society and are passionately asserting their self-determination as a proud Nation. As such, this thesis concludes with a discussion of practical implications for the Choctaw Nation of Oklahoma and other Native American tribes, as well as implications for Native American and ICT research.

This brief introduction (Chapter I) has only scratched the surface of the research situation, problem, and question at hand. These will be fully explained in the following four chapters:

CHAPTER	TITLE	PAGE	DESCRIPTION
Chapter II	Literature	10	A thorough review of scholarly literature that explains the relevance of this study in the information field, gaps in understanding, and the rationale for selection of the theoretical framework, <i>i.e.</i> , IT Culture theory
Chapter III	Research Design	65	A description of the methods selected to conduct this research study and the rationale behind methodological decisions that were made in designing the strategy for selecting participants, procedures for eliciting and collecting the needed data, and the analysis that was used to organize the data into themes and address the research question
Chapter IV	Analysis and Interpretation	111	A presentation of the analysis and interpretation of the data collected during this thesis study
Chapter V	Discussion and Insights	168	A wrap-up with a discussion of insights on the ICT Culture present among the Choctaw and its potential impact on their cultural heritage preservation and sharing.

Table I-1. Structure of the thesis document

CHAPTER II. LITERATURE

Although the research problem is rooted in practice, a review of scholarly literature is the starting point for this research and illuminates many issues that would have likely been missed had the literature not been consulted. Key literature is found at the intersection of themes germane to this research study—notably, studies about Native Americans and their cultural preservation efforts and ICT use. As literature is uncovered and analyzed, a potential gap in the research is signaled and frames the justification for this work. Undertaking a foundational literature review requires hopping from puddle to puddle, splashing the contents of overlapping academic fields and disciplines beyond the information field onto my research galoshes, such as anthropology, social science, and education. A rigorous set of review methods and techniques are utilized (Fink, 2009; Ridley, 2008). The results of this search are presented throughout the follow sections:

- Describing the Research Context,
- Framing of the Research Problem,
- Signaling a Gap in the Literature,
- Establishing the Relevancy of Organizational Culture as a Lens, and
- “IT Culture” as a Theoretical Lens to Provide Insights of Future IT Development.

Describing the Research Context

The research context is a component of this project that needs to be brought to the forefront. The researcher, as a non-Native American, has not only been granted the privilege of an appointment by Chief Gregory E. Pyle to work for the Choctaw Nation of Oklahoma (CNO) but also given permission by him to conduct research within the Choctaw Nation. The Choctaw context is given due attention and respect throughout this research. Table II-1 demonstrates the issues that are addressed through these discussions.

Historic Background and Contemporary Situation of the Choctaw Nation

In this section, the literature defines the following key contextual elements regarding the Choctaw Nation—past and present. The CNO has not always been a thriving tribal organization. The Choctaw Nation *of Oklahoma* was formed when the Choctaw became the first Native tribe to sign a treaty (*viz.*, the 1830 Treaty of Dancing Rabbit Creek) under the Indian Removal Act (DeRosier, Jr., 1981). The treaty ceded the Tribe's ancestral lands in present day Mississippi in exchange for lands in Indian Territory (now the state of Oklahoma). In 1893, the Dawes Commission was created by the United States Congress to negotiate with the Five Civilized Tribes (Choctaw, Cherokee, Creek, Chickasaw, and Seminole). The commission convinced individual members of the tribes to accept land allotments in Oklahoma. To decide who would receive these allotted lands, the Dawes Commission was responsible for identifying and recording the names of the tribe's members (Young, 1958).

The names of individuals who appear on the Dawes' roles (now all deceased) are referred to as “original enrollees”. Today, the Tribal government administers the process of membership into the Choctaw tribe. Membership is granted to an individual once the Bureau of Indian Affairs issues a Certificate Degree of Indian Blood (CDIB). A CDIB is given to a person who is able to provide proof of relation to an original enrollee (Bureau of Indian Affairs, n.d.).

Historic Background and Contemporary Situation of the Choctaw Nation	
CONTEXT JUSTIFICATION	SOURCES
• The Choctaw became an organization when they were removed to Oklahoma	(DeRosier, Jr., 1981; Young, 1958)
• The CNO is independently recognized and has its own identity, culture, and lands distinct from other Choctaws.	(Mithun, 2001)
• The CNO is flourished as a thriving multifaceted ethno-cultural, social, political, organizational, and commercial entity while retaining their identity and heritage.	(Lambert, 2007a)
• The CNO is the third largest tribe in the U.S. with over 200,000 members worldwide.	Choctaw Tribal membership roles

The Interchange of the Terms Indigenous, Native American, and Choctaw in This Review	
CONTEXT JUSTIFICATION	SOURCES
• The CNO has their own constitutional government with certain sovereign rights recognized by the U.S.	(McKee & Schlenker, 2008)
• The Choctaw were removed from their ancestral lands to modern day Oklahoma.	(Williams, 1990)
• They are currently in litigation to restore rights once guaranteed in treaties with the United States.	
• The CNO has formed its own Institutional Review Board (IRB).	Choctaw IRB Director

The Importance of This Thesis Research to the Choctaw Today	
CONTEXT JUSTIFICATION	SOURCES
• The CNO has a mission statement and has taken action towards self-determination by working to improve its people's well being.	(Lambert, 2007b)
• A personal identification with a culture improves a sense of well-being.	(Oetting & Beauvais, 1991; Weaver, 1998)
• The CNO is working to counter cultural atrophy and language disappearance.	(Haag & Coston, 2002; Weibel-Orlando, 1999)
• Culture is a priority to the CNO.	(Pesantubbee, 1994; Reed, 2011)

Bringing Information Field Research to Light in the Choctaw Context	
CONTEXT JUSTIFICATION	SOURCES
• Native American tribes are considered organizations by scholarly literature.	(Aufrecht, 1999)
• Organizational culture is often a microcosm of the greater culture at-large.	(Brown & Covey, 1983)
• Native Americans are often bicultural and frame switch as the need arises.	(Hong, Morris, Chiu, & Benet-Martinez, 2000; Silver & McCurdy, 2008)
• ICT has had an impact on Native culture.	(Boast, Bravo, & Srinivasan, 2007; Ginsburg, 1991)

Table II-1. Argument steps that justified conducting the proposed research with the Choctaw

A Bureau of Indian Affairs CDIB contains a measurement of tribal “blood quantum.” For example, if a member is one-half Choctaw by blood, *e.g.*, a full-blood Choctaw mother and a non-Choctaw father, their blood quantum would state “1/2” on their CDIB. It should also be noted that the Oklahoma Choctaws are not the only people-group who claim to be “Choctaw”. Other bands or tribes of Choctaw exist—*e.g.*, the Mississippi Band of Choctaws and MOWA Bands of Choctaws. The research proposed here is bounded to include only Choctaws who are members of the Choctaw Nation of Oklahoma as evidenced by their Federally-issued CDIB. This research does not include people from other Choctaw tribes, because those tribes are recognized as separate entities by the Federal government and claim their own identity, dialect, culture, and tribal lands separate from the Choctaw Nation of Oklahoma (Mithun, 2001).

Third, there was a crucial period in the mid-twentieth century that affected the current organization of Native American tribes. In the 1940s and 50s, many policymakers at the Federal level thought the best means for dealing with America’s indigenous populations was termination—a final thrust to permanently assimilate and marginalize Native Americans into the mainstream (Fixico, 1986). Termination was countered largely by the grassroots efforts of the National Congress of American Indians (NCAI), and self-determination entered the Federal vocabulary (Witt, 1965). U.S. President Richard Nixon further empowered the movement in his address to Congress, saying that self-determination is, “to strengthen the Indian's sense of autonomy without threatening his sense of community” (1970). Self-determination⁴ is the means by which Native American tribes can effectively self-govern themselves and make decisions that affect their own people. The Choctaw Nation of Oklahoma embraced the self-determination movement. After overcoming the Federal termination policies of the 1950s, the Choctaw Nation of Oklahoma ratified its own constitution in

⁴ Not to be confused with self-determination theory, pioneered by Deci and Ryan (2000).

1983 and flourished into a thriving multifaceted ethno-cultural, social, political, organizational, and commercial entity (Lambert, 2007a).

Fourth, the tribal organization is described in the contemporary setting by its size, the dispersion of its people, and its economic impact in the region. The Choctaw Nation is the third largest Native American tribe in the United States with over 200,000 members worldwide. The tribe has a historical and statistical land base that is the third largest area of any tribe in the lower 48 states. At nearly 12,000 square miles, one could fit the states of Delaware, Connecticut, and Rhode Island within its borders without overlap. The Choctaw Nation has a geographically dispersed population. Despite the land area, only about 18% of all Choctaws live in the statistical tribal area of southeast Oklahoma. Choctaws live in all 50 U.S. states—with significant concentrations in Texas and California—and some even reside internationally. Within the Oklahoma tribal lands, communities and schools are shared and integrated with non-Natives. This relationship between Choctaw and non-Choctaw is congenial as they share the area's resources and lands. The Choctaw Nation has quickly become the economic hub of southeast Oklahoma, impacting the regional economy—an area that has historically been impoverished (Busey, Sr., 2011).

The Interchange of the Terms Indigenous, Native American, and Choctaw in This Review

Next, a discrepancy one might observe in the usage of terms indigenous, Native American, and Choctaw is briefly covered. Throughout this chapter, one will see these terms used interchangeably when referring to the work of others. It is important to understand their usage within this paper and assumptions being made when they are interchanged. In the literature, a decent quantity is found at the intersection of search terms “ICT” and “indigenous” people. Indigenous people can be broadly defined as an ethno-cultural group that existed in an area before it was colonized or a nation encompassing it was formed. The definition of indigenous is layered and

complex. However, there are three particular characteristics drawn from the literature that bore significance on this research project and many indigenous people-groups:

1. Indigenous people typically maintain a certain amount of cultural or political distance from mainstream society (Coates, 2004);
2. Indigenous people have often been vulnerable to oppression and marginalization in the past during colonization of their lands and expansion of modern nations (Sanders, 1999); and
3. Indigenous people may be suspicious of academic research due to past exploitation or negative experiences (Nielsen & Gould, 2007; Smith, 1999).

For the purposes of this paper, an argument is made that the subjects of indigenous people, Native Americans, and the Choctaw people can be used interchangeably when considering the literature surrounding ICT and other research themes. The reasoning is sound. The Choctaw fit the definition and three marked characteristics of indigenous people presented above, in that:

1. They have their own constitutional government with certain sovereign rights recognized by the U.S. (McKee & Schlenker, 2008);
2. They were removed from their ancestral lands to modern day Oklahoma and are currently in litigation to restore rights once guaranteed in treaties with the United States (Williams, 1990); and
3. They have formed their own Institutional Review Board (IRB) and reserve editorial rights of publishable scholarly materials to protect the Tribe's cultural heritage as portrayed in research studies. This came about because of "past problems," according to the Choctaw's IRB Director (D. Wharton, personal communication, June 7, 2012).

This argument neither makes rash or stereotypical generalizations about the Choctaw nor suggests unfounded similarities between Choctaw and other indigenous cultures. The culture of indigenous

people around the world is vastly different and dynamically changes (Coates, 2004), and the culture of the Choctaw people and how they choose to express it is certainly unique in its own ways.

The justification that indigenous, Native American, and Choctaw be used interchangeably with respect to the literature surrounding ICT is important. It allows us to bring to light the research of other scholars in the broader context of ICT and indigenous people—provided it is proven to be methodologically driven, rigorous, and generalizable—rather than be constrained to the extremely sparse amount of work done specifically concerning ICT and the Choctaw alone⁵.

The Importance of This Thesis Research to the Choctaw Today

Next, the rationale is established for why this thesis research is important to the Choctaw people today. Issues are brought forth from the contemporary Choctaw setting.

First, the Choctaw Nation's effort towards self-determination and self-governance is a motivation for this project. In one sense, self-determination is a collective political movement that still exists. In the sense of this research, it is better seen as actions the Tribe has taken in the direction of self-sufficiency and self-governance (Lambert, 2007b). The Choctaws face many challenges. Externally, the Tribe has encountered resistance in the form of political opposition (Kelley, 2006); disputes over water rights or grave repatriation (Fine-Dare, 2002); or social and economic consequences of gaming (Grant II, Spilde, & Taylor, 2004). Internally, the Choctaw counter resistance to self-determination by addressing social problems, like domestic violence (Dolezal, 2011); substance abuse (Walters, Simoni, & Evans-Campbell, 2002); health problems (Henderson, 2002); or cultural atrophy and language disappearance (Weibel-Orlando, 1999).

Many of the challenges and issues listed above directly concern the quality of life and well-being of the Choctaw people. The tribal government of the Choctaw Nation has the mission statement, “To enhance the lives of all members through opportunities designed to develop healthy,

⁵ At the time of this writing, the researcher was only able to isolate one single peer-reviewed article from a scholarly journal that dealt specifically with ICTs and the Choctaw (*i.e.*, Haag & Coston, 2002) after a two-year search.

successful and productive lifestyles.” The Choctaw Nation responds to this mission by offering programs and services designed to improve the quality of life⁶. Conceptions of quality of life and well-being have been thoroughly studied across societies, nationalities, and ethno-cultural groups (Lynch, La Guardia, & Ryan, 2009; Rudy, Sheldon, Awong, & Tan, 2007; Ryan & Deci, 2000).

The connection between well-being and cultural expression helps establish the contemporary importance of this research. Scholars have argued that a personal identification by a community member with their respective culture improved a sense of well-being (Oetting & Beauvais, 1991; Weaver, 1998)—even more so with Native people as many regard their culture as sacred and fundamental to their identity and existence. As the Choctaw adapt to the socio-technical world that evolves around them, their desire to connect through their shared cultural heritage within their families and communities remains tantamount to other ways they strive to improve their quality of life. Gary Batton, Assistant Chief of the Choctaw Nation, gave evidence of the Tribe’s commitment to culture when he stated to Tribal leaders at a meeting, “Culture is our number one priority” (Reed, 2011, p. 1). Culture has been a priority of the Tribe for some time. Evidence of scholarly work on the subject goes back a number of years (Pesantubbee, 1994).

Traditionally, culture has been shared through the generations as it evolves and each successive generation carries on the language, tools, techniques, traditions, values, social systems, and ideologies of the previous generation (Bock, 1978). One cultural dimension that receives considerable attention is the revitalization of the Choctaw language (Haag & Willis, 2001). The Choctaw Nation has expanded its efforts to teach the Choctaw language, because many Choctaws today cannot speak Choctaw fluently (Haag & Coston, 2002). Many Choctaws who were born

⁶ A list of these programs and services is available at <http://www.choctawnation.com/>

during the baby boomer generation⁷ were not taught the Choctaw language by their parents. Many of their parents, the children of the original enrollees on the Dawes Commission roles, had negative experiences in English-speaking schools when the only language they knew was Choctaw. Because of this, many resolved to teach their children English first, so their children would not have the same difficulty. One elder Choctaw woman, Julia McKinney, remembered this experience and her reasoning for teaching her children English instead of Choctaw:

I remember the first grade that I went to. Nothing but Choctaw was spoken at my home. I had a hard time. My mother was limited on her English, too. She took me to school and enrolled me. Back in those days, we had outhouses. The outhouse was a ways from the school building... A group of us girls went down to the restroom, and when I came back, my mother was gone. I couldn't speak English, and I couldn't communicate. I used to have braids then, and I can just picture myself as a little girl standing there crying and crying. I don't know how I got on the bus. She must have told them what bus to put me on, because I was able to get home. That experience has always stayed in my mind... I went to first grade twice, because it was a big adjustment for me. After... I [was] married, I said that none of my kids would ever go through what I did, and I went from one extreme to another. I taught them all English. (*Interview of Choctaw elder J. M. B. McKinney, 2007*)

However, the generation of Choctaws raised during the baby boomer generation had a different experience than their parents. After the self-determination movement, the Choctaws flourished. Like other tribes, the Choctaw made efforts to adapt to and engage with the larger American culture surrounding them while retaining their identity and heritage (Lambert, 2007a). During this time, a renewed interest in the Choctaw language was fostered. As of 2013, the Choctaw language is being taught in 36 public school districts, seven public colleges in southeast Oklahoma, and in states beyond Oklahoma (including Texas, Kansas, California, and Alaska) ("Chahta Anumpa Aiikhvna: School of Choctaw Language," 2012). The youth of the Choctaw Nation have taken to this renascence of the language and culture of the tribe and are expressing it in their own way. For example, a 25-year-old Choctaw, Jesse "Red Eagle" Robbins, proclaims his cultural heritage through

⁷ This generation of Choctaws represents the grandchildren of the original enrollees, which corresponds chronologically with the baby boomer generation—*i.e.*, Americans born during the demographic Post-World War II baby boom and grew up during the period between 1946 and 1964.

rap music, as evidenced in the lyrics of his songs, such as, “Keep the shells, keep the songs, keep on stomping all night long; keep the dance, keep the drum, keep the language on your tongue” (“Red Eagle” Robbins, 2010). This evidence points to how the tribal community is emphasizing their culture with the Choctaw language as a major dimension.

In the early part of 2011, the Chief of the Choctaw Nation, Gregory E. Pyle, approached me about the possibility of using information technology for Choctaw cultural heritage preservation. The Chief had observed technologically-based cultural heritage preservation projects at other tribes and desired to determine the feasibility of a similar project within his own tribe. The Chief gave me the task of recommending a direction towards technology that could be used to store and present information about Choctaw cultural artifacts. He placed neither a constraint on the type of artifacts nor a limitation on the scope of the project, but that a cultural heritage information technology could include information about people, stories, relics, historic documents, artwork, crafts, rituals, or anything else associated with the culture of the Choctaw people. He stated that he views this as a legacy project that will impact future generations of Choctaws and contribute to sustained cultural viability within the Tribe for years to come.

Initially the focus of research on this project was on objects of Choctaw culture. (See the discussion of the pilot research project *Chabta Sia* on page 70.) However, it became clear that a focus on what Choctaw cultural heritage entails and how it should be best preserved was not the most pressing research issue to consider foremost. The issue of whether technology is a viable option for cultural heritage preservation was more important to address *first*. While what cultural heritage preservation and sharing specifically means for the Choctaw is important, it is not the focus of this work. The literature review signaled a gap in our understanding about the possibility and appropriateness of ICT being used for Choctaw cultural heritage preservation in the first place.

Bringing Information Field Research to Light in the Choctaw Context

This study is able to bridge information field research into a context not often accessible or considered by researchers. First, the amount of attention Native Americans have received in ethno-cultural research is considerable. Native Americans are an ethno-cultural group of increasing prominence on the economical, political, social, and cultural landscape in the United States, as noted in multifarious sources (*e.g.*, Aufrecht, 1999; Bee, 1999; Duffy & Stubben, 1998). Ebona (1984) illustrated several unique social and legal aspects that differentiate Native American tribes from other ethno-cultural groups, such as African, Latin, and Asian Americans. Native Americans signed treaties with the Federal government and have established land bases—whether a reservation or, in the case of many Oklahoma tribes, land allotments. Surely a segment of society with the status of a sovereign nation deserves recognition and consideration in research across fields and disciplines. Aufrecht (1999) echoed this sentiment.

Despite a rich legal literature on Native American rights, the public administration literature is almost silent in regard to Native American governance...This gap exists in a literature written using traditional academic methodologies by scholars with basically mainstream Euro-American worldviews (1999, p. 371).

Much literature will be presented in later sections of this chapter that deals with the relationship between ICT and culture at the organizational, national, and ethno-cultural levels. Before bringing that literature into consideration, I must justify its applicability in the context of a Native American tribe. Native American tribes are classified as organizations in the literature (Aufrecht, 1999) because of their structure and official recognition by the Federal government. Brown and Covey (1983) argue that organizational culture is often a microcosm of the greater culture at-large. Organizations that depend on external resources transfer important aspects of their external environments onto their own internal structures and processes.

Likewise, Native Americans consider culture as an important aspect of their internal structure and processes. They exhibit a phenomenon known as biculturalism, *i.e.*, they inhabit two

cultures and switch back and forth as they interpret cues from the environment (Hong et al., 2000; Silver & McCurdy, 2008). This phenomenon is illustrated by Kawagley (1995) who attempts to bridge the Native and non-Native worlds in which he lives. In this author's book about the Yupiaq worldview, he found ways his people use the knowledge contained in both Native and non-Native cultures that enable them to retain balance in their lives between the traditional and the modern. At the same time, they are able to maintain the spiritual strengths and practical wisdom that empowered their Native ancestors. He found they do not reject non-Native ways but desire to temper them with their Native wisdom. They see Native wisdom as threatened by non-Native ideals about technology that are in conflict with their Native attitudes, beliefs, and assumptions.

On the other hand, there are instances where Native tribes embrace technology to serve their communities' needs. Boast, Bravo, & Srinivasan (2007) describe their collaborative ED2 project (Emerging Databases, Emerging Diversity) involving the Zuni Native American tribe in New Mexico. Funded by the U.S. National Science Foundation, their initiative studied methods by which digital collections can contain a myriad of cultural ontologies. They defined "culturally-driven information systems" (Boast et al., 2007, p. 11) as facilitating the emergence of community-specific social meanings; fostering relationships between public institutions and their diverse constituents; and presenting examples to the public that consider the histories, contributions, and cultural differences of stakeholder communities. They also identify an expanding body of research that sees culturally embedded ICT as central to support infrastructure, education, and collective decision-making. However, they assert that culturally embedded ICT must be created in harmony with the culture and local practice rather than with external values and paradigms. Boast *et. al.* also cite anthropologists Ginsburg, Abu-Lughod, and Larkin (2002) for multiple examples of Native and ethno-cultural expressions in media and technology further justifying ICT and culture research.

In review, the key aspects of the Choctaw context have been thoroughly introduced, and the argument is established through the preceding literature that the Choctaw context is a good fit for ICT research. Now, the attention is turned to the research problem itself.

Framing of the Research Problem

There is a potential, and seemingly sensible, objection to this study—why not simply create an ICT for Choctaw cultural heritage and be done with it? The literature illuminates potential problems and barriers that could result from haphazardly introducing an ICT into the landscape of a Native American culture. The three potential barriers discussed below are as follows:

1. Lags in Choctaw ICT infrastructure and use;
2. Implications of the Choctaw language on the study; and
3. Potential consequences of a haphazard ICT on Choctaw culture.

The discussion of these potential barriers reveals support for investigating the role of ICT in Choctaw cultural heritage preservation and sharing before the first keystroke falls on the development of such an ICT.

Lags in Choctaw ICT Infrastructure and Use

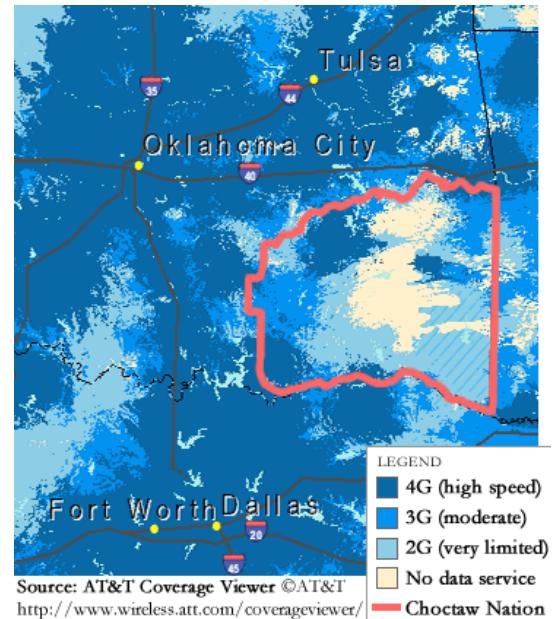
First, Keniston (2004) states that ICT projects encounter difficulty in indigenous cultures and other populations where ICT acceptance and use lag or are just beginning to emerge. Keniston gave the statistic that it took nearly a century for the printing press to impact the lives of more than 50 million people while it took the World Wide Web only four years. As quickly as Internet use spread, scholars lament a “digital divide”—originally conceptualized as the existence of “the haves and have-nots” in terms of Internet and ICT use. At first, the pragmatic solution was to simply equip those without ICT with the tools and connectivity they lacked. However, this solution only grazed the surface and proved to be ineffective, because the solution did not consider deeper

implications, such as content, culture, language, literacy, communities, and institutions on the “have-not” side of the divide (Warschauer, 2004). Issues of access, technological literacy, and infrastructural disadvantage further complicate an already existing digital divide for indigenous people (Keniston, 2004).

Although there is no literature found to-date that illustrates these specific issues within the Choctaw Nation of Oklahoma, Figure II-1 tells the story. The map shown (retrieved from the AT&T™ on June 19, 2012) depicts the mobile data coverage provided by a prominent carrier in the Choctaw Nation and surrounding region. Darker shades of blue denote faster mobile data upload and download speeds through newer cell phone technologies while the cream/off-white color denotes no data coverage at all. Notice the disparity in mobile data coverage and speeds between the Choctaw Nation (outlined in red) and the rest of the region.

As an example of the implications that a telecommunications infrastructure disadvantage has for a people-group, Dyson (2004) demonstrates within indigenous Australian communities a correlation between poor telecommunications infrastructure and low rates of computer ownership, poor computer literacy, low enrollments in university ICT courses, and few ICT professionals. Although there are no empirical data to support whether or not the Choctaw exhibit the same correlation as Dyson (2004), a few inferences are made from other data and literature.

- In 2011, only 52% of Oklahoma Native Americans used the Internet in their homes (compared to 72% of whites and 81% of Asians);



Source: AT&T Coverage Viewer ©AT&T
<http://www.wireless.att.com/coverageviewer/>

Figure II-1. AT&T mobile data coverage of the Choctaw Nation and surrounding region

- Also in 2011, Oklahoma ranked 13th worst in the U.S. with 23% of all households that do not use the Internet at all (National Telecommunications and Information Administration, 2011a, 2011b); and
- There is a lack of Choctaw students enrolled in university-level science, technology, engineering, and mathematics (STEM) courses and Choctaw adults pursuing STEM-related careers (Bang & Medin, 2010).

Considering these statistics, there exists a digital divide for the Choctaw Nation that can make acceptance and use of an ICT for cultural heritage preservation a challenge (Bissell, 2004).

Implications of the Choctaw Language on the Study

A second challenge of creating an ICT for cultural heritage is language—illustrated by the fact that 60-80% of all web pages are in English with the remainder in the languages of dominant and developed countries (Keniston, 2004). From this debate, many researchers devise practical solutions and study the effects of language and information use and retrieval—particularly in indigenous communities still speaking their tribal, autochthonous, minority, or endangered languages. Researchers point to the importance and need of multilingual ICT interfaces. For example, Keegan extensively studied the effects of having a digital library that uses the language of the Māori people (Keegan & Cunningham, 2005; Keegan, 2007, 2008). He found that usage of the library improved when both English and the Māori language were made available and users had the ability to switch back and forth between them. Considering Native American language in cultural preservation projects is vitally important (Nichols, Witten, Keegan, Bainbridge, & Dewsniip, 2005). Although most scholars acknowledge the potential challenges posed by cultural differences in bi- or multilingual resources, few, if any, attempted to understand them (Cunliffe et al., 2002).

I experienced this firsthand when a full-blood tribal elder once told me to be careful in using the word “digital,” because there is no Choctaw word for it, and thus it is likely to be misunderstood

or ignored (O. Williams, personal communication, July 21, 2011). It would be quite difficult to explain a digital library or digitization of family cultural artifacts to someone who has no word for “digital.”

Potential Consequences of a Haphazard ICT on Choctaw Culture

Understanding the potential conflict that exists between ICT and the Choctaw culture is of central importance to this study. In a landmark study, Robey and Bordeau (1999) revealed how ICT has created culture “shocks” and contributed to cultural transformation. While some transformations are positive, there is also the strong possibility of negative consequences of ICT. Unless these potential consequences are recognized and anticipated, great harm can come to the Choctaw culture. Adequate consideration must be given to how an ICT *should be* implemented, since Choctaw cultural preservation and sharing are the ultimate goal.

First, potential negative outcomes of an ICT-based cultural preservation project come from the axiom of what’s good for some may not be good for others. Roy and Raitt (2003) remind us that Native Americans “do not reside in some primitive and romantic past” (Roy & Raitt, 2003, p. 411), but that their social communities are active and contemporary even as they work to maintain and reclaim their expressions of culture and tradition. The authors asserted that the number of cultural centers, libraries, educational centers, and archives that Native tribes are constructing evidence this cultural revitalization. However, they caution researchers against over-generalizing examples of successful implementations of ICT in select tribal communities. As of 2011, there were 565 Federally-recognized Native American tribes in the United States alone (Bureau of Indian Affairs, 2011)—each one with its own distinct culture, language/dialect, and, according to Roy & Raitt (2003), archival protocol and research etiquette.

In a special issue of the *Wicazo Sa Review*, several articles discuss the issues that Native communities face with ICT. First, Jojola (1998) supposes that if an ICT elevates the potential of

humans, it can also elevate the potential of a community. He said that Native communities have an advantage over assimilated, mainstream communities, because Natives “do not talk about community, they live it” (Jojola, 1998, p. 6). Yet on the same token, he makes the philosophical argument that a technological life, or an online presence, is only an approximation of real life. In contrast, the “tribal self” desires to be rooted in true identity. He cautions that if we are not careful, an ICT that is meant to elevate Native communities might rob them of their identities. This is seen as peril for a Native community, because Native culture is the collective manifestation of identity and the soul of the community.

In same special issue of the *Wicazo Sa Review*, Howe (1998) carries this argument thread specifically into a discussion of tribalism and the Internet. His argument contrasts the collective nature of tribalism with the individualism the Internet promotes. Howe asserts, “Tribes, not Indians, are sovereign” (C. Howe, 1998, p. 22), such that prominence of the Tribe is more important than the aggrandizement of individual members. Howe claimed that while ICT offers power that is attractive to some tribal communities until the individualism and universalism of the Internet are expanded to incorporate spatial, spiritual, and existential dimensions of tribal life, “cyberspace is no place for tribalism” (C. Howe, 1998, p. 27).

Conversely while Howe lamented the problems that the Internet might create for Tribes, Warner (1998) complained that Federal policies of the late 1990s were exclusionary of tribes when it came to improving telecommunications infrastructure that would give Internet access to tribal members. She gives evidence that tribes with a large land base, like the Navajo⁸, need to invest in their own infrastructure rather than depend on the Federal government to help. Without these ICT infrastructure investments, Warner argues that the digital divide for Natives will continue to widen.

⁸ As aforementioned, the Choctaw Nation of Oklahoma has the third largest land base of any tribe in the continental U.S. at over 12,000 square miles, second only to the Navajo and the Ute and Ouray

Thus, the issue of ICT investment is an issue of self-determination, and ultimately the decisions of the community of what and when to invest.

These lessons from the *Wicazo Sa Review* resound in the importance of uncovering the potential consequences of implementing an ICT in a Native culture.

Signaling a Gap in the Literature

The literature on the roles of ICT used in Native American or indigenous cultural heritage preservation is certainly not absent. Much work spanning two decades covers the subject. The following section highlights what others have done in similar projects, but points out why these strategies are inadequate for the research problem presented here given the people, time, and place of this context. Table II-2 summarizes this literature and the gaps left in understanding, followed by a discussion of certain focus areas.

Gaps in Literature on Indigenous Artifact Curation and Digital Libraries

Researchers who study the role of ICT and cultural heritage preservation grapple with many of the same issues as the Choctaw research problem and context. First, best practices in curation of collections of Native American cultural artifacts are important decisions. Christen (2006, 2008) discusses the repatriation of archives and cultural artifacts from museums to restore them back to an indigenous community's control. In an effort to repatriate significant cultural property to their tribe, she described an 18-month in-country tour of a mobile digital archive created by the South Australian Museum—a project called *Ara Irititja*. While the *Ara Irititja* project is commendable in its use of ICT to meet the goal of returning cultural objects to the community in an accessible form, the write-up left several questions about the researchers decisions of best practice unanswered. For example, the ICT was left in control of the museum personnel and curators. The research did not discuss this decision of *who should control* the cultural ICT and why.

Gaps in Literature on Indigenous Artifact Curation and Digital Libraries		
FOCI OF LITERATURE ON ICT AND INDIGENOUS HERITAGE PRESERVATION	SOURCE	GAP LEFT IN UNDERSTANDING THE RESEARCH PROBLEM AT HAND
• Returning significant cultural property to a tribe	(Christen, 2006, 2008)	• Decisions about control of the ICT not discussed
• Decisions about control of cultural ICT	(Hennessy, 2009)	• Decisions about control dealt at the end of the development process, not beforehand
• Protocols for archiving Native American materials	(Underhill, 2006)	• Offers no methods to uncover the importance to the community of using ICT in the first place
• Creation of ICT that mirrors Native ontology	(Srinivasan & Huang, 2005)	• Addresses importance of using ICT according to tribal leaders, but not tribal community members

Gaps in Literature on Indigenous Community-Created Media		
FOCI OF LITERATURE ON ICT AND INDIGENOUS HERITAGE PRESERVATION	SOURCE	GAP LEFT IN UNDERSTANDING THE RESEARCH PROBLEM AT HAND
• Use of media to construct identity	(Ginsburg et al., 2002; Ginsburg, 1991, 2002)	
• Use of media for internal political issues of cultural representation and authenticity	(Turner, 1992, 2002)	
• Group construction of realities and social meanings	(Syracuse University South Side Initiative, 2009)	• Do not address cultural assumptions of the value of ICT skills to the community of using ICT in the first place
• Constructed social differences by teaching the community film-making technology to Natives without techniques	(Worth & Adair, 1972)	

Gaps in Literature on Participatory Development with Indigenous People		
FOCI OF LITERATURE ON ICT AND INDIGENOUS HERITAGE PRESERVATION	SOURCE	GAP LEFT IN UNDERSTANDING THE RESEARCH PROBLEM AT HAND
• Comparative effects of an ICT in community development	(Srinivasan, 2012)	• Did not address who wins and who loses in using ICT
• Challenges when creating ICT with indigenous communities	(Hughes & Dallwitz, 2007)	• Effects of cultural differences put off to the end of a design process
• Adoption issues due to non-native ideals embedded in ICT	(Dyson, 2004)	• Did not address underlying attitudes of acceptance issues
• Control of a community-driven ICT	(Srinivasan, 2007)	• Project not mature enough to assess and generalize control issues
• Cultural gatekeepers	(Metoyer-Duran, 1991)	• Did not address who wins and who loses in using ICT

Table II-2. Foci and gaps of literature on ICT and indigenous cultural heritage preservation

Hennessey (2009) described a similar project with the Doig River First Nation that allowed the community to dictate the terms of access and distribution of their cultural archives. The author raises the pertinent question of who should be responsible to determine how digital cultural heritage should be controlled. The question was raised in her field experience implementing a virtual exhibit of the Doig River's culture. She said that, at the beginning of the project, a painted drum made by a tribally renowned elder prophet was selected by the researchers as a thematic anchor for the exhibit. However, two years later as the project was in final stages of review and approval, the community began to voice concerns over the portrayal of the drum. The lesson learned by the author was they should have dealt with the issue of *control* before the project began and not towards the end.

The literature also heightens awareness of the work already done considering protocols for creating and working with Native American archives. Underhill (2006) summarizes many of these considerations in her article about the *Protocols for Native American Archival Materials*, published by a group of nineteen Native American archivists, librarians, curators, historians, and anthropologists. She outlined several principles put forth by the *Protocols*:

- The importance of consulting community members,
- Understanding Native values and priorities,
- Providing a culturally sensitive context, and
- Recognizing community-based research protocols.

While useful in encouraging respectful archival activities, the *Protocols* do not speak to the fundamental question of how the Choctaw community might feel about the role of ICT in their cultural heritage preservation. Also, they did not offer suggestions of research methods one might use to elicit how *important* it is to the community that ICT is involved in the archival process.

Also within the focus of curation, Srinivasan and Huang (2005) assert that digital museum creation should reflect the dynamic ontology of a community. Introducing a project called Tribal

Peace, the authors highlighted a digital museum that tied three Native American reservations together to achieve greater political sovereignty. While the research connects an assumption of *importance* of the ICT found among tribal leaders, there is no mention of the tribal members' feelings on the matter.

Another illustration of the gap in understanding the role of an ICT within Choctaw cultural heritage is a proposed project that never got off the ground. In Fall 2011, I pitched the concept of a digital library to the Choctaw Chief for curating his people's cultural heritage. However, the project never commenced, because the Chief was unsure how the Choctaw would accept the technology. We were unsure if the Choctaw people would accept an ICT, *i.e.*, a digital library, being involved in their cultural expression. Would the Choctaw people react adversely if an ICT was present and actively involved in the capture or display of culture? With this question unanswered, it was impossible to proceed respectfully.

Gaps in Literature on Indigenous Community-Created Media

Another way this research problem could be approached is using Choctaw community-created media for heritage preservation. The literature offers examples of indigenous articulations of culture through media:

- How indigenous communities use video and television media in their efforts towards self-determination and resistance to the assimilating effects of outside cultural domination (Ginsburg et al., 2002; Ginsburg, 1991, 2002);
- The politics of cultural representation and how the community negotiates cultural authenticity as they redefine and reimagine their social identity (Turner, 1992, 2002);
- Reflections on the “way things used to be” with the contemporary realities and social meanings for minorities (Syracuse University South Side Initiative, 2009);

- Maps and language as tools to organize resources like indigenous multimedia, digitized documents, and photos (Michael & Dunn, 2007); and
- Cultural dialogues on a range of ICT, digital filmmaking, multimedia, and digitization issues (Minana, 2007).

While all of these projects merit attention surrounding the context, problem, and goals of this research, literature on media studies with Native Americans and indigenous people left an unaddressed gap. Considering a research project that incorporates digital media, I showed one of the tribal elders an example of a digital camera designed for the average person to make their own home videos. He looked at the camera, turned it around in his hands as he contemplated how it might be used in Choctaw cultural preservation. He handed it back to me and told me that it was unlikely that the elders would use them. He said they might “play with it a little,” but they would “see no use in it” (O. Williams, personal communication, July 21, 2011). This field experience is informative and gives me pause into using community-created media as an avenue to study the research problem. The literature on media does not address the Choctaw’s cultural assumptions about the *value of ICT skills* among the Choctaw people. Such skills are necessary to make a community-created media project successful. The words of the Choctaw elder and the caution issued by other literature (e.g., Leidner, 2010) about the unknown cultural impacts of ICT signal this gap where the literature on media studies left off. To illustrate a cultural assumption about the value of ICT skills, Worth and Adair (1972) attempted to teach Navajo people how to use filmmaking technology without introducing Western practices of production and editing to see if a particular cultural nuance would surface in the Navajo films. The researchers failed to consider the cultural differences in the Navajo people as evidenced by this conversation they documented with a tribal elder named Sam:

Adair explained that he wanted to teach some Navajo to make movies.... When Adair finished, Sam thought for a while and then...asked a lengthy question, which was interpreted as, “Will making movies do the [people] any harm?” Worth was happy to explain that as far

as he knew, there was no chance that making movies would harm the [people]. Sam thought this over and then asked, “Will making movies do the [people] good?” Worth was forced to reply that as far as he knew making movies wouldn’t do the [people] any good. Sam thought this over, then, looking around at us he said, “Then why make movies?” (Worth & Adair, 1972, p. 5)

In this example, it is plain to see the need in evaluating how the community sees the value of ICT skills before the technology is utilized. This goes back to the ethics of unobtrusive and unbiased research. If I were to insert haphazardly an ICT into the Choctaw community for their cultural heritage preservation, I would be projecting my Western ideals onto them. What if they care not to use it in the first place? An understanding of the Choctaw’s cultural assumptions about ICT is needed before a study of different media created by ICT is used for their heritage preservation.

Gaps in Literature on Participatory Development and Design with Indigenous People

Another angle of approach considered in addressing the research problem is found in literature on participatory development and design of ICT in indigenous communities. The conception of participatory development, found in a general sense, is to engage communities in ICT projects that directly serve their needs and solve their own problems. There is a body of literature on how scholars introduce ICT to indigenous communities to solve local problems, including those that:

- Advocate the case for an *in situ* development process for indigenous people because of their closer harmony with nature and organic focus on sustainability, and argue against *ex situ* processes fueled by institutional models and technological might (Agrawal, 1995);
- Attempt to understand how participatory development is socially determined and how these influences affected the roles ICT play within a context (Puri & Sahay, 2007); and
- Demonstrate how methods elicit discourse and participation in ICT development (Wang & Burris, 1997).

Yet these studies are limited by a lack of specificity to apply in ICT projects, focused more on control in development than control of the ICT, and have limitations in access and participation.

Another example of control issues in the cultural ICT literature is Srinivasan (2006a, 2012), who used a two-year study of two remote, largely illiterate, and traditionally ritualized communities in rural India to compare the effects an ICT had on community development. The author claimed these communities' ability to surmount the digital divide is not through their ability to access external information through ICT, but to use ICT-created media to catalyze development activity from within. In both cases, he invited community members to participate in focus groups to discuss problems in their communities and propose solutions. However, in one community, he gave digital video recording equipment to members of the community. In the other village, he withheld the equipment. He asked the people with the cameras to go around their village and film examples of problems and bring the video back to the focus group meetings to share with the group and discuss. Srinivasan noted significant differences between the community that used the cameras and the one that did not. In the former, there was a notable amount of engaging reflections, collective action, consensus building, and proposed changes for the better. In the latter, the community without the use of the video-making ICT took longer to reach consensus, made more disjointed decisions, and were more mired down in problems that inhibited their ability to propose workable solutions. The results of the study are commendable.

However, the very nature of the Srinivasan study signals a gap in an understanding of the Choctaw problem that needs to be addressed first. As his study showed, the community that possessed and controlled the ICT was more empowered than the one that did not. Yet, there were some struggles to decide which individuals should do the video capturing and which issues were of greatest priority. This study did not address the community's beliefs about *who wins and who loses* when an ICT is introduced in their development project. Could it be that the ICT is *too* individually

empowering in a project like this—particularly considering a collectively oriented community (like many Native American tribes) where balance and harmony within the community are harmed by individual aggrandizing? At this point in understanding the Choctaw needs, it is imperative to ascertain whom they believe the *beneficiaries* to be if an ICT is to be used for their cultural preservation. Unless each tribal member is given an equal opportunity to contribute using the ICT (which is nearly impossible considering the 200,000-plus membership dispersed throughout the globe), I anticipate potential consequences and imbalance from giving control of the cultural heritage ICT to some and not others. Especially, I hesitate to introduce an ICT when there may be those who will suffer because of it.

The gap in understanding is widened by literature where indigenous communities are led to co-develop and design ICT that met their needs. ICT products are considered ethno-cultural artifacts themselves (Walsham, 2005), and thus an ICT design merits attention in the context of the role an ICT might play in Choctaw cultural heritage preservation.

Hughes and Dallwitz (2007) recount their field experience creating a digital archive for two indigenous people-groups in central Australia. The researchers discuss the challenges they faced when designing, implementing, and deploying the system. Two lessons they learned resonate:

1. Designing a digital archive of cultural heritage is a painstaking process where the community must be integrally involved at every step; and
2. Standard ICT best practices must be set aside and reconsidered when designing systems for indigenous people.

The authors assert that cultural differences between standard ICT practices and local beliefs risk the success of an ICT *investment* with indigenous people. While duly noted, the authors do not go so far as to identify or explain these differences. Only through trial and error did they learn this the hard way. If they had investigated these cultural differences *before* beginning the design process, could they

have saved themselves and the community from the “painstaking” aspect of a multi-year investment that was riddled with issues?

Dyson (2004) raised another aspect of design consideration when working with indigenous people—acceptance. His argument is that many modern ICT designs are embedded with Westernized ideals and values. He questions the neutrality of ICT’s and even considers them to be a new method of colonization and assimilation. While this paper deals with awareness and acceptance issues around the assimilating effects of ICT, the author did not delve into causes of rejection, *e.g.*, how threatened indigenous people felt or were fearful of ICT’s that espoused Westernized values.

Srinivasan (2007) presented the case of a community-driven information system that was co-designed and developed between 19 Native American reservations in San Diego County (California). Because ICT systems are criticized by many as instruments of cultural imposition (Dyson, 2004), the author attempted to demonstrate an example of how a community designed an ICT in a process driven by their needs and discourses. Through his study, Srinivasan arrived at three conclusions:

1. There is a connection between the social, cultural, and political context and usage of a community-driven ICT;
2. An ICT project should become more sustainable as social and cultural leaders continue to steer and publicize the project; and
3. Institutionalization of an ICT project within community practices is critical.

However, Srinivasan admitted not enough data were collected to substantiate fully the latter two conclusions, because the project was incubated for only eight months. He assumed that the best way for the project to live on successfully was a tight control by social and cultural leadership. Is that true? Also, the project did not address what *justified the investment* in an ICT that spanned 19 Native American tribal cultures. Were members of all 19 of these tribes convinced such an investment was wise? These questions were left unanswered.

In summary, much is gleaned from an investigation of the literature on ICT design with indigenous communities. From the very beginning of my tenure with the Choctaw, it has been my intent to promote what Zhang (2007) called *positive ICT design*, *i.e.*, designing a technology people can utilize to support their well-being. Zhang stated that ICT design processes will lead to more positive outcomes if they:

- Support local or individual autonomy,
- Promote creation and representation of self-identity,
- Facilitate human-to-human interaction, and
- Represent human social bonds.

By facilitating a process where Choctaws can co-create a shared ICT, we will be promoting these principles of positive design—creating something the Choctaws can use to support their own well being. In light of the other projects presented above, I assert that attention to questions of Choctaw assumptions during this pre-design stage will prove to be important during the actual design.

More than just making cultural considerations, I aspire to have a community-led initiative. As shown thus far by the literature, scholars agree that haphazardly inserting ICT into a cultural environment can result in rejection of the technology or, worse still, damaging effects to political and power structures if knowledge is shifted abruptly. For example, in this context there are cultural gatekeepers (Metoyer-Duran, 1991)—elders who are stewards of stories centered on their family's kinship. What if an ICT is created that captures their stories for all to hear and suddenly they are no longer the principle gatekeepers of that information? How will they feel about their grandchildren sitting at the computer to learn about what it means to be Choctaw instead of in their lap? A positive design creates minimal risks and maximum benefits for the community for whom the technology was created. Also, a positive design would allow the Choctaws, and not the technical specialist, to guide the process. Choctaws are the owners and creators of their culture and stories. Any ICT we

create should be *about* them, *for* them, and *by* them. It is the assertion of this thesis that these decisions should be made *before* the actual design began.

In the culmination of all the literature presented in this section, the gaps in understanding found in this literature correlate with the theoretical framework used in this thesis—“IT Culture” (Kaarst-Brown & Robey, 1999; Kaarst-Brown, 1995, 2005). At this intersection of theory and gap in the literature, this thesis demonstrates how insights about how an ICT can be used for Choctaw cultural heritage for an overall positive impact. This positive impact can only be achieved if first we understand what the Choctaw believe about:

- Who should *control* the ICT containing Choctaw personal, sacred, and cultural information;
- How *important* the ICT is to the Choctaw concerning their cultural heritage preservation;
- How much *value* Choctaws place in having ICT skills—if any at all;
- Why should the Choctaw *invest* in ICT; and
- Who will *benefit* and who will not if an ICT is introduced.

Ultimately, the focus of interest is the Choctaw people themselves—not the interpretation or operationalization of their culture. How and in what form it is to be preserved and expressed is their decision. Outsiders cannot accomplish it. Motivated by their desire for cultural identity and need for understanding shared history, the idea of a cultural heritage ICT appeals to Choctaws’ sense of well-being and connects them to a part of who they are—just as a grandmother in a Choctaw family tells stories in her native tongue while children and grandchildren sit around her and listen.

An understanding of underlying assumptions about ICT held by the Choctaw people is crucial before beginning a cultural heritage preservation project that utilizes an ICT. The literature on curation and digital libraries, community-created media, participatory development, and design shows us the importance of uncovering the attitudes or beliefs present in an indigenous context and affirms the need to select a different approach to be able to understand the research problem.

Establishing the Relevancy of Organizational Culture as a Lens

The literature in the previous section on digital libraries, media, and participatory development/design shows that approaching the thesis research problem from a problem-solution perspective is inadequate. The literature leaves too many gaps to be able to understand the role of ICT in Choctaw cultural heritage preservation. Thus, it is necessary to get to the root of what underlies the research problem. To examine the research problem at this level of depth requires an appropriate lens. This short section is concerned with establishing the rationale for an analysis of culture as such an interpretive lens for this thesis study.

In this thesis document, the term culture is used quite frequently. It is important to introduce to the reader definitions of culture present in the literature. These definitions guide the process of selecting a cultural lens to understand the research problem. Culture is a term of broad usage. In academic contexts, culture is often studied from the disciplines of anthropology, humanities, and social sciences; yet, it also has meanings beyond traditional scholarly domains, such as popular culture. Delving into the many concepts and complexities of culture is beyond the scope of this study. For the purposes of this research, an understanding of culture is developed through an analysis of the literature.

Cultural considerations have been important in ICT research as a theme of considerable work. For example, Leidner and Kayworth (2006) offer a thorough review of literature on ICT and culture citing 83 direct studies from over two decades (1983 to 2003). The authors recognize the challenge of studying culture in relationship to ICT, because of the complexity in definitions, understandings, and measures of culture that exist. They argue that culture is a critical variable in explaining how groups interact with technology. The authors show the conflict that exists between ICT and culture and suggest a path towards reconciling this conflict by adopting a values-based approach in research and practice. One of Leidner and Kayworth's findings is that only a few articles

address ICT impact on culture. Moreover, they asserted that even fewer articles demonstrated the notion of “IT Culture”, citing Kaarst-Brown (1995) as a foundational work in understanding the role of underlying assumptions, how these assumptions are shaped, and their impact on organizations and society.

Recent research on the subject of IT occupational culture by Guzman (2006) and Guzman and Stanton (2009) demonstrate further relevancy of a cultural lens within the information field. The authors used sequential mixed methods of focus groups and interviews followed by a survey instrument. They sought to understand how the cultural dimensions of ICT occupations attract or dissuade students and potential professionals to or away from the field—particularly women and cultural minorities. Their study found that personal fit within the IT occupational culture is a good predictor of occupational choice and commitment to careers within the ICT industry.

Analyzing the role of culture as a lens, Leidner (2010) reviewed and organized the ICT-culture literature in three “waves” of understanding cultural differences in ICT: identifying, explaining, and managing the differences. She names a number of studies that identify cultural differences but was able to find very little literature that help practitioners explain or manage the differences. Looking to the future, Leidner predicts a fourth wave of ICT and culture research: the impact of ICT on culture. This article lends confidence to my assertion that identifying, explaining and managing the impact of ICT on Native Americans from a cultural perspective is highly current, even in light of decades of other studies.

This study recognizes the overlap of culture usages present in the Choctaw context. This adds complexity to defining culture and selecting a cultural lens. I must consider culture at multiple levels and discern which consideration contributes to answering the research questions. To illustrate this point, recall the earlier section titled, Describing the Research Context (see page 11). The literature clearly shows that the Choctaw are a distinct ethno-cultural people-group (Mithun, 2001).

The Choctaw Nation of Oklahoma, as a government and business entity, is also an organization (Aufrecht, 1999). Moreover, the U.S. Federal government also recognizes the Choctaw Nation as a sovereign Tribal nation—a “nation within a nation” *per se* (McKee & Schlenker, 2008). Therefore, from which level—ethnic, organizational, or national—should the Choctaw research problem be viewed? I argue the most apt way to address the research questions posed in this thesis is to draw upon the organizational view of culture, reflecting a subgroup within broader American culture. Table II-3 briefly summarizes the means by which a definition of the term culture emerged throughout this project.

LEVEL	DEFINITION	DEFINITION SOURCE	USAGE IN REGARDS TO
Ethno-cultural	Cultural Dimensions	(Bock, 1978)	<ul style="list-style-type: none"> Characteristics of the culture, <i>e.g.</i>, language, social systems, reciprocity, enculturation, technology, ideologies, and values
National	Hofstede's Dimensions	(Hofstede, 1984)	<ul style="list-style-type: none"> Power distance, individualism versus collectivism, uncertainty avoidance, masculinity versus femininity, and long-term versus short-term orientation
Organizational	Cultural Perspectives	(J. Martin, 1992)	<ul style="list-style-type: none"> Integration, differentiation, or fragmentation of culture
	Cultural Assumptions	(Schein, 1990)	<ul style="list-style-type: none"> Three levels of culture with attitudes and beliefs as underlying assumptions
	IT Culture	(Kaarst-Brown, 1995, 2005)	<ul style="list-style-type: none"> Archetypal patterns of assumptions about ICT
	Expression of Culture with Symbols	(Kroeber & Kluckhohn, 1952)	<ul style="list-style-type: none"> Theory, symbolism, and creative expression

Table II-3. Definitions of the term “culture” considered in selecting a cultural lens

Consideration of an Ethno-cultural Lens

First and foremost, the research context of this study is surrounded by an ethno-cultural people-group’s heritage. Ethno-culture can be defined by the cultural characteristics prevalent within a definable people-group. These basic characteristics are listed by Bock (1978) as the following *cultural dimensions*:

- *Language*—how people-groups express ideas using their language and symbols or how they share and encode what they know;
- *Social systems*—particularly, kinship, marital, filial, social, and residential arrangements and relationships within the people-group;
- *Reciprocity*—their work and their personal economics;
- *Enculturation*—how the culture is transferred to the young, or how outsiders are allowed inside;
- *Technology*—tools they use to act upon the world or adapt to changes, and techniques, such as crafts, skills, subsistence, medicine, and communication;
- *Ideologies*—such as their religious beliefs and attitudes towards authority and property; and
- *Values*—including their morality, esthetics, and ethos.

Potentially these dimensions could be brought to the forefront in this research study due to their interaction with ICT and their relevance to the central research problem. For example, examining the dimensions of social systems, technologies, and values could be useful in understanding the role of ICT in Choctaw heritage. At the same time, consideration of many of these dimensions would create “research overhead” that may not be germane to the research problem at hand. That is to say, viewing the specific research problem—the role of ICT in cultural heritage—with a lens as wide-angle as ethno-culture is broad and unfocused.

In addition, I am not a cultural anthropologist or a member of the Choctaw Nation. I make no claim of a thorough knowledge or understanding of Choctaw culture beyond what has been gained through formal and informal observations and interactions with the Choctaw people. To pretend to have a firm grasp on Choctaw culture would be disingenuous. Besides, the intent of this research is *not* to analyze or study the *content* of Choctaw ethno-culture—*i.e.*, its experiences, representations, characteristics, or dimensions. Instead, I choose to recognize and respect it as it

intersects and interplays with ICT and the cultural assumptions about ICT this research project discovers. Thus, viewing the research problem central to this study through purely an ethno-cultural lens is beyond my personal expertise and is not the most direct way.

Consideration of a National Culture Lens

However, one could view the research problem through a national culture lens. A significant amount of work has been done to understand the effects of national culture on technology use and adoption. For example, the Technology Acceptance Model (TAM) as defined by Davis (1989) is a popular theory used to understand user acceptance—a long-standing issue within the information field. However, this approach led to problems when scholars attempted to apply TAM in a research setting where national culture is a factor. The literature points to the inadequacy of TAM when applied in various cultural contexts. For example after surveying nearly 4,000 college students from over 20 countries, McCoy, Galletta, and King (2007) found incongruence in the application of the TAM when applied to certain nationalities exhibiting differing cultural characteristics. Their study compels a cautious hesitation of applying TAM haphazardly across cultures.

Also consider Hofstede's (1984) Cultural Dimensions. Hofstede's theory measures national culture over five primary dimensions: power distance, individualism versus collectivism, uncertainty avoidance, masculinity versus femininity, and long-term versus short-term orientation. This theory has proven to be popular in the information field over the years. Ford *et. al.* (2003) identified 57 ICT studies that use at least one of Hofstede's Cultural Dimensions. Despite this precedence, Leidner (2010) and Ford *et. al.* (2003) both argued that the application of cultural dimensions has saturated the culture-ICT literature and has gone little further than identifying a few cultural differences. The other concern with this approach is its practical application in addressing the research problem central to this thesis. Using this theory, it may be possible to measure Hofstede's Cultural Dimensions of the Choctaw population and compare them to U.S. mainstream culture. However,

this approach would not directly address the primary research problem—the potential role of an ICT for Choctaw cultural heritage preservation and sharing. Thus, there is little persuasion for viewing the research problem through a national culture lens as the best way to proceed.

Consideration of an Organizational Culture Lens

Organizational culture remains when ethnic and national culture lenses are set aside. However, a process of elimination is not adequate to substantiate the argument for the use of an organizational lens with the Choctaw Nation. Instead, organizational culture is examined as a potential lens to build a convincing argument for its use.

Understanding Martin's (1992) work on integrated, differentiated, and fragmented cultures is a good start. According to Martin, an organization or society is made up of multiple subcultures, rather than a single culture. These can be viewed from three different perspectives:

1. *Integration.* All members of the organization share a consensus of values and purpose;
2. *Differentiation.* There are frequent disagreement or conflicts among groups in the organization with limited consensus; and
3. *Fragmentation.* There is a significant amount of ambiguity in the organization with consensus coexisting with conflict and much variation among groups.

Martin (1992) purports that the best way to view an organization is to see it through all three perspectives—each one informing a different level of understanding. Martin developed a model of subcultures within cultures by distinguishing between conceptualizations of organizational cultures that were cohesive and unitary, *i.e.*, integrated, and those characterized as collections of subcultures, *i.e.*, differentiated. Fragmented subcultures are ambiguous and open to members' multiple interpretations. These distinctions imply that differentiated subcultures would preclude an integrated culture. That is to say, an organization may either have a unitary culture with no subcultures or subcultures with no overarching organizational culture. However, this typology does not consider

the possibility that subcultures might co-exist within an overarching culture. Considering a Native American Tribe as large and dispersed as the Choctaw Nation, this route would create great difficulty in identifying all the differentiating, or even fragmented, subcultures of Choctaws and their assumptions about the role of ICT in their cultural heritage preservation and sharing.

Culture can also be viewed through Schein's (1990) three levels of culture: artifact, values, and underlying assumptions. (See Figure II-2.) Technology itself is the primary visible *artifact* surrounding this study involving Choctaw culture. According to Schein (1990), a greater level of awareness is placed on values within a culture, and those values are testable only by social consensus. So when engaging Choctaws in discussions about ICT, their *values* concerning technology quickly emerge. However, that is not the full depth I seek to uncover. Going deeper, the basic *assumptions* about technology found in the Choctaw culture are invisible, preconscious, or taken for granted. This deepest level of Schein's culture is of utmost interest to the researcher—how to deal with the attitudes and beliefs the Choctaw people had in their relationship with ICT.

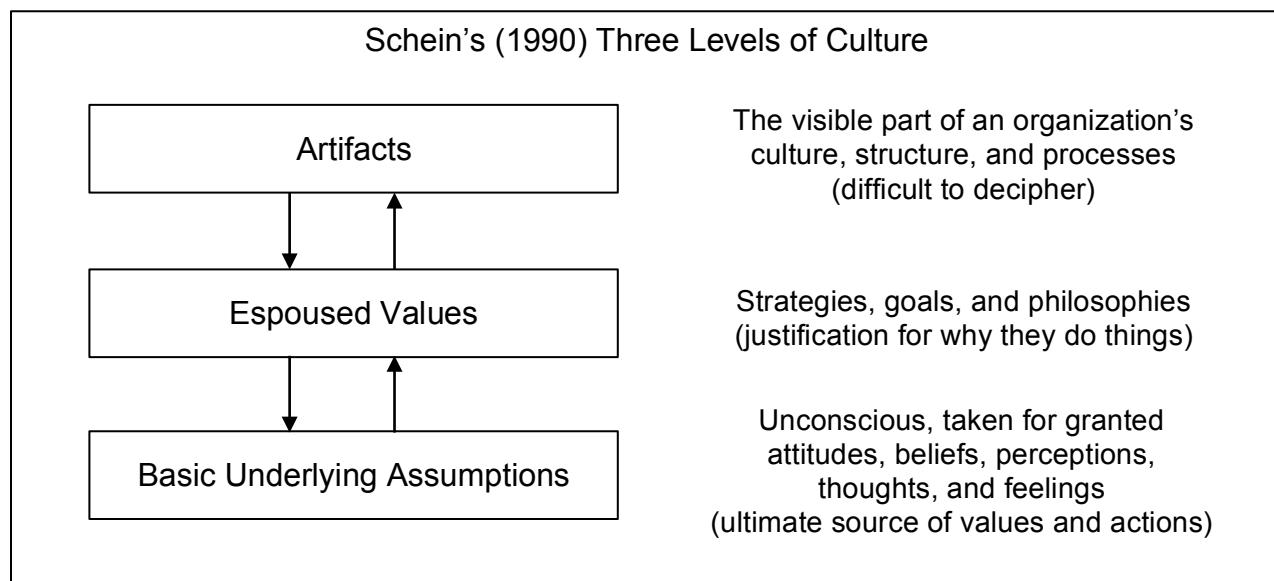


Figure II-2. Adapted from Schein's (1990) three levels of culture

As Schein (1990) theorized, these patterns of basic assumptions likely develop as the Choctaw cope and adapt to technological change in the world around them. Emerging generations of Choctaws may be taught these same assumptions as the right way to think and feel. If so, it is vital to examine how these basic assumptions are espoused as values, beliefs, and myths about past success or failure, acceptance or rejection of technology.

In the literature, the cultural assumptions conception is applied to ICT in the form of “IT Culture,” as defined by Kaarst-Brown (1995, 2005) and Kaarst-Brown and Robey (1999). Viewing the research problem from the IT Culture perspective, the Choctaw are viewed as having their own IT Culture—a pattern of basic assumptions about technology that is developed by the Choctaw as it encounters and adapts to ICT and learns to cope with its problems of adaptation and integration. The Choctaw patterns of assumptions about ICT could have been formed by early and current experiences with technology. The Choctaw underlying assumptions about ICT may then have been taught to new generations of Choctaws as the correct way to perceive, think, and feel in relation to technology. If so, an attempt to uncover Choctaw cultural assumptions about ICT could very well address the research problem presented by this thesis.

As a final note, culture can also be defined as a distinct way people classify and represent their experiences with symbols and act creatively (Kroeber & Kluckhohn, 1952). The Choctaw context of this thesis research surrounding the storytelling by tribal members represents ways the Choctaw people are acting creatively to represent their experiences. Scholars have demonstrated the use of symbolism with Native American tribes within ICT studies (Srinivasan, 2007; Vickers, 1998). The Kroeber and Kluckhohn definition of culture opens the possibility to express the findings about the Choctaw in a symbolic way—just as Kaarst-Brown (1995) used symbolism to represent the cultural assumptions found in the insurance companies in her study of IT Culture.

In summary, organizational culture is an appropriate lens by which to view the Choctaw research problem, mainly because of the encouragement found in the literature of Martin (1992), Schein (1990), Kaarst-Brown (1995, 2005), and Kaarst-Brown and Robey (1999). Use of an organizational lens opens the possibility to understand the role of ICT in Choctaw cultural heritage preservation and sharing with sufficient depth, because it digs down into the underlying assumptions found in the Choctaw people rather than simply considering surface artifacts and values. With the appropriate lens in place, the discussion on literature moves to the selection of an adequate theoretical framework to apply to the Choctaw research problem.

“IT Culture” as a Theoretical Lens to Provide Insights of Future IT Development

Scholars and professionals in the information field must be able to articulate and apply theories and conceptual frameworks to understand the importance of information, how it flows, and what challenges exist within a situation. However, a bibliometric analysis of five popular social science journals⁹ in 2011 suggested a dominant a-theoretical approach to studying ICT and the culture of Native American or indigenous groups. Given apparent the lack of relevant ICT theory application in this body of research, it is necessary to turn to a broader range of potential theories. Culture research involving ICT tends to be guided by a handful of dominant theories. The theories considered for this thesis study are listed below and summarized in Table II-4:

- Technology Acceptance Model (Davis, 1989),
- Culture Dimensions (Hofstede, 1984),
- Symbolic Interactionism (Blumer, 1969),
- Social Construction of Technology (SCOT) (Bijker, Hughes, & Pinch, 1987; Pinch & Bijker, 1984),

⁹ ProQuest ABI/Inform, Social Sciences Full Text, SCOPUS, FirstSearch, and Google Scholar

- Social Capital (Putnam, 2001), and
- IT Culture (Kaarst-Brown, 1995, 2005).

Overview of Cultural ICT Theories Considered

To begin, the Technology Acceptance Model (TAM) as defined by Davis (1989) was a theory considered for this research problem. The rationale for determining that this theory is unsuitable for this thesis research has already been discussed in a previous section. (See page 42.) To review, this approach was not selected because of problems encountered by other scholars who attempted to apply TAM in a research setting where culture was a factor, *e.g.*, McCoy *et. al.* (2007), who found incongruence in the application of TAM across different national cultures.

THEORY	ADVANTAGES	DISADVANTAGES	DECISION
Technology acceptance model (Davis, 1989)	<ul style="list-style-type: none"> • Well-established • Addresses the research question 	<ul style="list-style-type: none"> • Proven inadequate in ethno-cultural contexts (McCoy <i>et. al.</i>, 2007) 	Unsuitable
Cultural dimensions (Hofstede, 1984)	<ul style="list-style-type: none"> • Widely used (Ford <i>et. al.</i>, 2003) 	<ul style="list-style-type: none"> • Over-used and limited (Ford <i>et. al.</i>, 2003; Leidner, 2010) • Does not address primary research question 	Unsuitable
Symbolic interactionism (Blumer, 1969)	<ul style="list-style-type: none"> • Both theory and method • Fits context 	<ul style="list-style-type: none"> • Does not address primary research question 	Unsuitable
Third space (Bhabha, 1994)	<ul style="list-style-type: none"> • Emphasizes sharing 	<ul style="list-style-type: none"> • Cultural sharing ICT does not yet exist to measure effects 	Unsuitable
Social capital (Bourdieu, 1986)	<ul style="list-style-type: none"> • Methodologically powerful; would generate lots of data through discourse and reflection (Putnam, 2001) 	<ul style="list-style-type: none"> • Cultural sharing ICT does not yet exist to measure Social Capital 	Unsuitable
Social construction of technology (SCOT) (Bijker <i>et. al.</i> , 1987; Pinch & Bijker, 1984)	<ul style="list-style-type: none"> • Attentive to historical, cultural, and social context 	<ul style="list-style-type: none"> • Scope too large and timeframe too long for this study 	Unsuitable
Underlying assumptions of technology (Kaarst-Brown, 1995, 2005)	<ul style="list-style-type: none"> • Adaptable to the research context • Directly addresses research question • Opportunity to anticipate potential impacts of ICT 	<ul style="list-style-type: none"> • Untested in an ethno-cultural context 	Suitable

Table II-4. Summary of theories and frameworks considered for this thesis project

Likewise, another theoretical approach previously considered was Hofstede's (1984) Cultural Dimensions—also discussed in the same section as TAM. In short, Leidner (2010) and Ford *et. al.* (2003) both critiqued Cultural Dimensions as being overdone in the cultural ICT literature and going little further than identifying a few cultural differences. Both of these theories are thus removed from consideration as a theoretical approach for this thesis.

Another potential approach is to utilize symbolic interactionism (Blumer, 1969) as both theory and method. It is quite possible that the symbols of Choctaw culture could be examined through this theoretical/methodological lens and its three basic premises: 1) that humans act towards objects on the basis of the meanings associated with those objects, 2) that a person's meaning behind those objects is derived from the interaction with his or her fellow people, and 3) that those meanings evolve through an interpretative process as the person deals with those objects. Using this perspective, the purpose of such a research design would have been to discover the objects of Choctaw culture as identified by the participants in the study, understand their meanings behind those objects, observe how the meaning behind those objects evolve as the participants collectively interpret them and interact with each other. Those objects and their respective meanings could be the building blocks in the ICT design process.

As helpful as symbolic interactionism may be, it does not directly uncover the potential role of ICT in Choctaw cultural preservation, because it focuses on the cultural objects themselves and not the underlying assumptions. However, this approach may be useful at a later time with the Choctaw. If the Choctaw people decide to use ICT's for their cultural preservation and sharing, it might be helpful to understand how they symbolically understand and interpret particular ICT as a part of the cultural landscape. Obviously, this approach would require an ICT to exist that is being actively and widely used for cultural preservation and sharing. This is not the case. Thus, symbolic interactionism was not selected for this study.

Moving on, we could view Choctaw heritage preservation as a shared cultural ICT space. The definition of this shared space was drawn from philosopher Bhabha's (1994) idea of a "Third Space", as defined by the following statement:

The *pact of interpretation* is never simply an act of communication between *the I* and *the You* designated in the statement. The *production of meaning* requires that these two places be mobilized in the passage through a *Third Space*, which represents both the general conditions of language and the specific implication of the utterance in *a performative and institutional strategy* of which it cannot 'in itself' be conscious. What this unconscious relation introduces is an ambivalence in the act of interpretation. [*emphasis added*] (Bhabha, 1994, p. 53)

Considering this definition and by entering into a "pact of interpretation" (a research study) between "the I" (the researcher) and "the You" (the Choctaw), the "production of meaning" (as understood from symbolic interactionism) could be mobilized in the "Third Space" (a shared cultural ICT space) through "a performative and institutional strategy" (a methodology). This "Third Space" as a theoretical lens may serve as a reflection upon culture as Choctaws reveal their relationships with shared cultural objects and ICT's. A pilot study of Choctaw cultural images (Kaarst-Brown & Dolezal, 2012) that will be discussed in greater detail in Chapter III (on page 70) was conducted and offers a good example of how "Third Space" could be applied.

During the pilot study, digital cameras were given to Choctaw families. They were asked to take photographs of things that were culturally significant to them. During the conversation with a Choctaw elder discussed earlier (on page 30), the digital cameras going to be given to the participants were shown to him. The elder recognized that because the participants would associate little to no meaning to the digital camera, they would likely interact very little with it. However, when the photographs of cultural items taken with those same cameras were displayed, Choctaws of all ages attending the festival were very interactive with them (evidenced by a high participation rate.) Many shared the meaning they held for the object represented in the image. Another Choctaw reflected on an image of an original homestead, and how it reminded her of the house her

grandmother grew up in. Another reflected upon an image of a Choctaw songbook as it reminded her of how much Choctaws love to sing songs in the Choctaw language.

Through this activity, Choctaws were creating a shared cultural “Third Space” where they discussed and reflected upon the images they most identified as cultural. Thus, this thesis study could analyze a “Third Space” that delved much deeper into the discourse and reflection upon Choctaw culture. It may be insightful to bring Choctaws together in a group setting so that how they interpret meaning together could be observed in a “Third Space.” Again, the problem is a focus on cultural objects and not the impacts of creating a shared ICT space. Whether or not the matter of ICT’s would even naturally enter the discourse space is speculative, and artificially injecting the subject into the discourse may introduce bias. Thus, the “Third Space” interpretive framework as conceived by Bhabha (1994) is not the best choice for use at this stage of research of cultural heritage preservation with the Choctaw.

Another theoretical framework in consideration of this study is Social Capital. In terms of this consideration, Social Capital is understood to be “the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition—or in other words, to membership in a group (Bourdieu, 1986, p. 242).” The Choctaw people already possess several of these features of Social Capital: 1) actual and potential resources—*i.e.*, their shared history and cultural objects; 2) a durable network of institutionalized relationships—*i.e.*, their shared identity as members of the Choctaw Nation; 3) mutual acquaintance and recognition—*i.e.*, their shared friendships and kinships. Thus, is there a way to aggregate this Social Capital in a shared cultural ICT space that spans generational differences and dispersed geographies?

As Putman (2001) suggests, the strength of a community is in their ability to reflect and collaborate—the crux of Social Capital. Eighty-two percent (82%) of all members of the Choctaw

tribe live outside the boundaries of the historical Choctaw Nation in southeast Oklahoma. It may be possible to explore how Choctaw families can cooperate in cultural expression, connect to one another, commence on a path towards the sharing and reflecting of their own culture, and use ICT to surmount the great distances that separate these people from one another. Also, it is expected that Social Capital could be fostered inter-generationally. Through conversation and observation with the Choctaw, there appears to be a generational spectrum that has a technically motivated and digitally mobile youth on one side and more traditionally minded elders on the other. While an analysis of Social Capital could be informative at some point, it would more likely be useful as an outcome to ICT used for cultural sharing. The ICT would need to exist to measure its effect on Social Capital. More importantly, this study could not address the primary research problem about the potential role of ICT—only its effects. Therefore, the Social Capital approach is tabled for consideration at a later date.

Finally, one other promising avenue of research is considered—Venkatesh's (2003) Community Network Lifecycle. His framework was developed from social organization theories, like the Social Construction of Technology (SCOT) model (Bijker et al., 1987; Pinch & Bijker, 1984), and was designed to account for the social and historical context where a community network originates, stabilizes, and transforms. The author discusses the origin of community networks, social structure relationships with power and community, macro-social issues, needs and assets of community, and the balance of local and extra-local constituents. It could be possible to conceptualize the Choctaw tribe as a community network embedded in a social, cultural, and historical context. Once an ICT for cultural preservation and sharing is introduced, the ICT-mediated Community Network Lifecycle framework can be used to study how it originated, stabilized, and changed. The difficulty with this approach in this application is the potential for a lengthy timeframe. To study the entire lifecycle would take many years and several subsequent

studies. It seems more appropriate at this point to study the initial role of a cultural ICT for preservation and sharing as a starting point. Then, the Community Network Lifecycle could be utilized as a potential framework to step back and analyze the big picture of the entire process.

In summary, all of the theoretical approaches discussed to this point have merit and potential application. However considering the time and context of the thesis research problem, none of them is the best fit. Moving forward, the theoretical approach chosen and the rationale for why it was selected over others is introduced.

Overview of “IT Culture” Theory

After considering multiple approaches and theories to understand the potential role of an ICT in Choctaw heritage preservation and sharing, Kaarst-Brown’s (1995, 2005) theory of underlying cultural assumptions about technology—*i.e.*, IT Culture—is the best available theoretical framework to underpin this research. Critical to this choice of theory is honoring the Choctaw people’s spirit of self-determination. Helping them decide if and how ICT will be utilized for their cultural heritage can achieve this. Thus, this theory is selected because it directly addresses and uncovers Choctaw underlying cultural assumptions about ICT.

IT Culture (Kaarst-Brown, 1995) is a groundbreaking theory that began with a two-year ethnographic study of two large insurance companies (referred to as Icuban and Seeuac in the original research) and developed over a decade of subsequent applications and papers (Kaarst-Brown & Guzman, 2008, 2010; Kaarst-Brown & Robey, 1999; Kaarst-Brown, 2005). The theory has been informally tested in academic, health care, and government organizations and a “strong face-validity beyond the original corporate environment (Kaarst-Brown & Guzman, 2010, p. 61)” was found. In addition to being the first study to develop specific cultural dimensions associated with ICT, this theory supports the notion that archetypal patterns are determinable within an

organization. The patterns that Kaarst-Brown found resonate with historic archetypes that go back hundreds of years. As such, similar patterns ought to emerge with the Choctaw.

IT Culture draws heavily from Schein (1990), discussed in depth in an earlier section (starting on page 43). His conception is that subconscious assumptions found in an organization underlie cultural artifacts and values. These assumptions co-exist with varying degrees of conflict in most organizations, and as such patterns of assumptions will likely emerge rather than a single set of cultural beliefs.

In the original research on IT Culture, Kaarst-Brown found archetypal IT cultural patterns. These patterns can be used to justify IT use and implement ICT use for different reason and thus strategically exploit information technologies. In the same way, IT Culture will provide valuable insights into how ICT can be effectively implemented for Choctaw cultural preservation.

When studying organizations, Kaarst-Brown did not find any difference in the presence of particular IT Culture patterns based on age, gender, occupation, or functional group. Her findings supported that underlying assumptions about IT are shaped by broader influences and experiences outside their workplace, rather than simple organizational practices. Recent work by Birkland (2012) also found that accumulated experiences with IT shape deep-structure beliefs and underlying assumptions about IT.

IT Culture theory was developed using rigorous ethnographic and grounded theory methods. Her data collection generated over 210 hours of interviews and 500 pages of field notes. Kaarst-Brown utilized multiple approaches when selecting participants and analyzing the data that resulted in rich, deep descriptions of her participants' experiences. Several themes emerged from the data of the two organizations; of which, she found assumptions about IT that could be clustered into five major categories or cultural dimensions. These cultural dimensions included variations on the nature of assumptions people had about IT. The variations came from the range of stories told

by people in both insurance companies but clustered into categories during analysis. Dimensions emerged about IT Control, Centrality, Skills Value, Justification, and Beneficiaries. Table II-5 highlights these dimensions and the differentiating assumptions that surfaced with each. The dimensions fit well with previous non-cultural studies with ICT and Native Americans (see page 27).

DIMENSION	DIFFERENTIATING ASSUMPTIONS
Who Should Control IT Direction	<ul style="list-style-type: none"> • IT is out of control—avoid it • Business executives should control IT • IT professionals should control IT • Business units should control their own IT direction • Control should be shared between the IT department and users
Centrality of IT to Business Strategy	<ul style="list-style-type: none"> • Not significant at all • Significance depends on who is sponsoring the IT project • Imperative to corporate survival and success • Critical to operational and tactical goals at the business unit level • Depends on the nature of the strategic business problems
Value of IT Skills and Knowledge	<ul style="list-style-type: none"> • IT skills are not values because they are threatening • IT skills are not as important as business skills • IT skills are highly valued and rewarded • IT skills are necessary for certain business unit managers and staff • IT skills are valuable when partnered with holder of business skills
Justification for Further Investment in IT	<ul style="list-style-type: none"> • Competitive or survival pressures only • IT will reduce staff and costs • Development and experimentation with IT provides opportunities • IT that improves personal and unit level productivity • Justification varies depending on the business problem or strategy
Beneficiaries (Who Wins and Loses) of New IT	<ul style="list-style-type: none"> • No one wins, non-IT staff lose • Organization wins, but IT staff may lose • IT department and staff wins along with the organization and customers • Individual business units win, but IT department may lose a little • Organization and customers win with selective loses

Table II-5. Five dimensions and their differentiating assumptions as found by Kaarst-Brown (1995, pp. 353, 356, 363, 368, 372)

While these five descriptive dimensions provide a map of cultural assumptions about IT, further analysis showed that these assumptions aligned into five distinct, but archetypal, IT cultural patterns. Kaarst-Brown drew upon the data and the respondents' use of the metaphor of magic to illuminate IT cultural patterns resembled shared—or archetypal—reactions to the mysterious and

unknown nature of technology. The metaphor of magic became a significant way to make sense of the data. She took iconography of cultural artifacts from mythology—magic, wizards, and dragons—and used them as a metaphorical lens, illustrating how underlying assumptions about IT resembled archetypal reactions to the unknown as they have for centuries. Backed by relevant literature that came to similar conclusions, she used the symbol of “magic” to reference IT and “wizards” as IT professionals or people with IT skills (1995, p. 54). Also, the theme of an unknown or mysterious power connected to IT emerged, and thus the author selected the symbol of a “dragon” to coincide with references to “magic” and “wizards” made by participants in interviews. This created a metaphorical illustration of how people within these organizations perceived ICT.

As Kaarst-Brown analyzed her data around these themes of magic, wizards, and dragons, she found five archetypal patterns within both companies that revealed the cultural meaning and assumptions about IT. She stated,

When I recast the various events in both sites using the metaphor of information technology as magic, I found that everything seemed the same and yet different. The reactions all fit, the power dynamics, the roles and structures. More importantly, the differences in reactions of different groups, or to different situations, and all the loose ends suddenly wove together into a picture that made sense. What emerged were five specific archetypal reactions to magic, which resonated in the data from both sites. In addition, these five archetypal reactions enabled organizing of the assumptions under each descriptive dimension to discriminate five distinct IT cultural patterns. I would like to stress that there was no conscious search for fives, nor were the assumptions under each descriptive dimension forced. (Kaarst-Brown, 1995, p. 386)

The five archetypal patterns allowed her to organize the assumptions she found into five archetypal cultural patterns: Fearful, Controlled, Revered, Demystified, and Integrated IT Cultures. Each of these archetypal patterns carried with it implications for the strategic management of IT, including conflict, innovation, and championship behaviors. Kaarst-Brown developed images to depict visually these patterns, using the dragon as technology and the wizard as an IT professional.

Tables II-6 through II-10 summarize the characteristics, implications, and illustrations of Kaarst-Brown’s (1995) archetypal patterns of ICT culture.

1. The dead dragon: the “Fearful” information technology culture

CHARACTERISTICS	IMPLICATIONS	ILLUSTRATION
<ul style="list-style-type: none"> Users fear technology and perceive it as threatening “Dragons” are rejected “Wizards” are banished or ignored Users lack ICT skill and have minimal interaction with ICT Users do not seek technology solutions Users reluctant to automate 	<ul style="list-style-type: none"> Users have a strong concern for people and impact on other users Diligent in testing and good at finding flaws in ICT, e.g., continuously check calculations manually Users can kill off an ICT implementation Under-utilization of installed ICT 	

Table II-6. The “Fearful” IT Culture (Kaarst-Brown, 1995, p. 397)

2. The caged dragon: The “Controlled” information technology culture

CHARACTERISTICS	IMPLICATIONS	ILLUSTRATION
<ul style="list-style-type: none"> “Wizards” and “Dragons” are tightly controlled, have low status, and are not fully trusted Buffers and barriers to ICT project success ICT specialists segregated from users ICT seen as a “necessary evil” 	<ul style="list-style-type: none"> Better integration than in revered patterns, as business leaders have control of ICT direction and use IT function subordinate to the business leaders Competition for limited ICT resources Passivity among users, discouraged from applying ICT to solve problems 	

Table II-7. The “Controlled” IT Culture (Kaarst-Brown, 1995, p. 412)

3. The dragon on a pile of gold: the “Revered” information technology culture

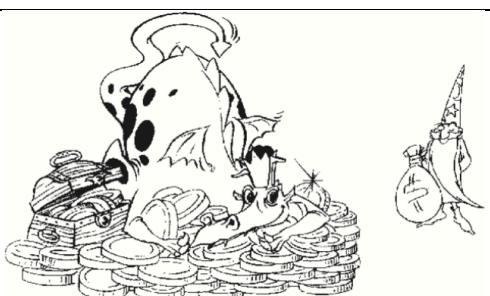
CHARACTERISTICS	IMPLICATIONS	ILLUSTRATION
<ul style="list-style-type: none"> “Wizards” (ICT specialists) enjoy financial bounty, high status, and free rein “Dragons” (ICT) are lavished with resources ICT leaders are seen as heroes and problem solvers Acquisition of ICT skills is rewarded ICT is centrally controlled 	<ul style="list-style-type: none"> ICT initiatives receive little resistance Aim to gain competitive advantage by becoming early adopters of new ICT Vested interests in ICT may ignore evolving business needs Complacent ICT leadership may sit on laurels “Black box” syndrome 	

Table II-8. The “Revered” IT Culture (Kaarst-Brown, 1995, p. 435)

4. Pet dragons: the “Demystified” information technology culture

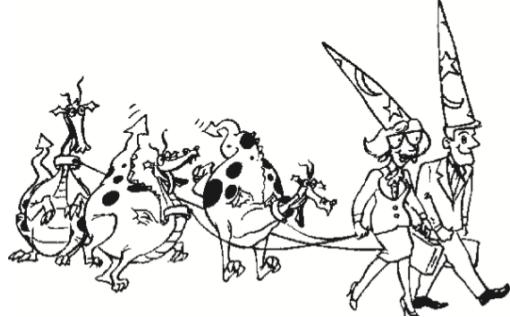
CHARACTERISTICS	IMPLICATIONS	ILLUSTRATION
<ul style="list-style-type: none"> “Wizards” are susceptible to being ignored and “dragons” are smaller and less powerful Users are empowered and see themselves as the wizards Often conflict between trained “Wizards” and novice user-wizards ICT seen as toys “Wizards” are assumed to have little concept of actual business needs High ICT acceptance and user-driven projects 	<ul style="list-style-type: none"> As ICT develops and use simplifies, more demystified culture will emerge “Wizards” are often criticized or become involved in power struggles Increased sponsorship of ICT projects by business leaders May duplicate ICT efforts as users attempt to solve their own problems Possible lack of data standards 	

Table II-9. The “Demystified” IT Culture (Kaarst-Brown, 1995, p. 451)

5. Team dragons: the “Integrated” information technology culture

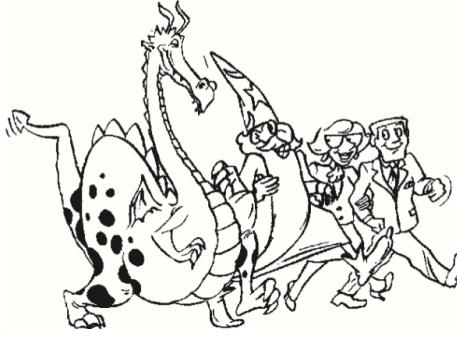
CHARACTERISTICS	IMPLICATIONS	ILLUSTRATION
<ul style="list-style-type: none"> Idealistic partnership between “wizards”, “dragons”, and users Balance of business and IT needs as driving IT User self-sufficiency, balance of individual competency with team reliance Underlying assumption of cooperation “Magic” is a creative experience shared by all with the goal of appropriate use 	<ul style="list-style-type: none"> Desire for joint development and direction of ICT, e.g., an ICT steering committee Seeks extensive input from users as “wizards” and users willingly worked together Team formation may not guarantee teamwork Risk of faulty assumption of equal ICT knowledge and skills among team members Participation sometimes seen as tradeoff, and negotiation, rather than win-win 	

Table II-10. The “Integrated” IT Culture (Kaarst-Brown, 1995, p. 466)

While wizards and dragons are steeped heavily in mythology, there is no evidence to suggest that these symbols translate well to Choctaw culture. At a glance, this seems unfortunate as other scholars demonstrate the use of symbolism with Native American tribes successfully (Srinivasan, 2007; Vickers, 1998). However, after several inquiries into Choctaw folklore, mythology, and history and after analyzing the data, some symbols relevant to the specific research context were found. These symbols will be introduced on page 140.

Another important aspect in the development of the IT Culture theory (Kaarst-Brown, 1995, 2005) came as Kaarst-Brown analyzed both insurance companies' histories with IT. Not only did she find five different cultural patterns existing within the organizations, she also saw how those patterns developed and changed over time. The study recounts the outcomes of the two companies' initiation into IT and the ways that actions, processes, people, and technologies either sustained or challenged existing assumptions about IT. By understanding their respective histories with IT, Kaarst-Brown was able to deduce how the cultural patterns were formed and the conflicts and forces that induced their change and evolution over time. Kaarst-Brown provides an illustration of the change in IT culture at her two respective insurance companies as shown in Figure II-8.

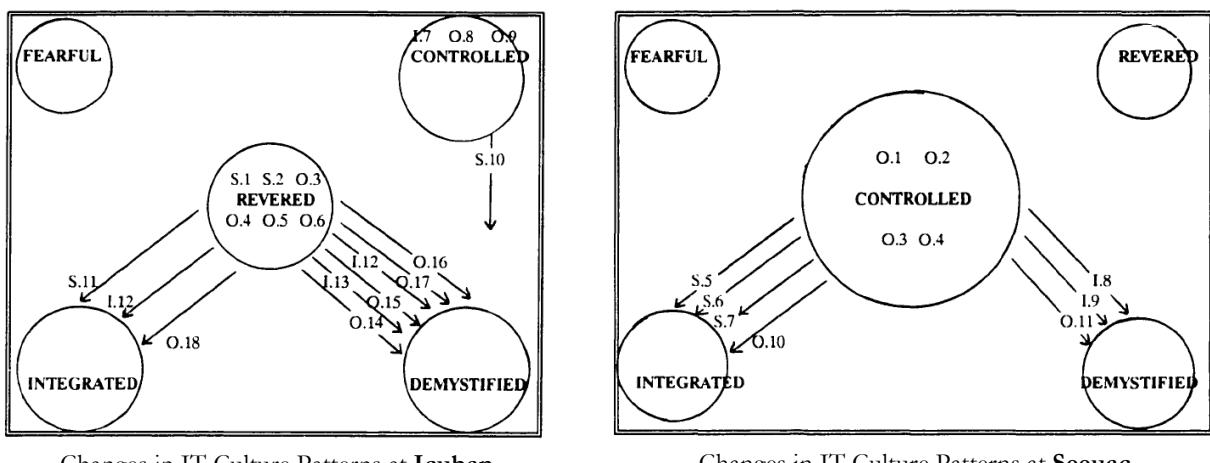


Figure II-8. Changes in IT culture patterns at Kaarst-Brown's (1995, pp. 521, 526) two insurance companies

In this figure, it is clear to see the strength and change of IT culture patterns in the respective companies. In her figures, the radii of each circle show the strength and persistence of each pattern, and arrows show forces or efforts to shift the overall patterns of the organizations. In Chapter IV, Figure II-8 will be constructed in a similar manner for the Choctaw as an interpretation of the data gathered.

Most promising for my study, the IT Culture theory (Kaarst-Brown, 1995, 2005) demonstrates each IT Culture in action. Kaarst-Brown achieves this by spotlighting the functional

and dysfunctional aspects of each archetypal pattern, and thus providing implications for practice. These aspects give insights on how to manage the challenges and conflicts created by differing IT cultures. This proves to be of great importance to understanding the role ICT play in Choctaw cultural heritage preservation and sharing. Table II-11 summarizes the functional and dysfunctional aspects of each cultural archetype identified by Kaarst-Brown (1995, pp. 410, 434, 450, 465, 480). These aspects will be used to predict what the potential functional and dysfunctional aspects of the role of ICT in Choctaw cultural heritage preservation.

PATTERN	FUNCTIONAL	DYSFUNCTIONAL
Fearful	<ul style="list-style-type: none"> • Cautious use • Extra testing 	<ul style="list-style-type: none"> • Avoidance and/or failure to accept IT solutions • Under-utilization of existing IT • Failure to achieve diffusion
Controlled	<ul style="list-style-type: none"> • Business vision and perception of corporate needs guide IT development • Decisions made at senior level can generate corporate-wide or radical change 	<ul style="list-style-type: none"> • Level of business executive's knowledge may constrain effective integration of IT • Power issues may exclude IT from planning • Senior level control may encourage passivity of middle and lower level management and staff • Structural barriers evolve which inhibit communications • Top-down change may be forced upon end users
Revered	<ul style="list-style-type: none"> • Extensive research and development investment • Early adopters • Innovators • Support for championship behavior 	<ul style="list-style-type: none"> • Biased evaluation of benefits of innovation • IT solution perceived for all problems • Complacency • Vested interest in legacy infrastructure and pet projects may decouple IT strategy from business needs
Demystified	<ul style="list-style-type: none"> • Same person IT/business skills • Integration of IT and business strategies • Adopted innovation at level of the business unit 	<ul style="list-style-type: none"> • Failure to invest in organization-wide development • Stagnation of legacy systems and operations • Sub-optimization and/or increased competition for resources • Increased risks of end user computing • Political maneuvering counter to organizational goals
Integrated	<ul style="list-style-type: none"> • IT and line can both present innovative solutions, regardless of technology • Negotiated approaches which balance available technology and business needs or objectives 	<ul style="list-style-type: none"> • Rituals may interfere with intent • Individual power may supersede negotiated team process • Expectations may not fit with resources or skill levels of either users or technical specialists

Table II-11. Functional and dysfunctional aspects taken verbatim from Kaarst-Brown (1995, pp. 410, 434, 450, 465, 480) five archetypal patterns

Extension of “IT Culture” Theory

The Kaarst-Brown (1995, 2005) theory is a fresh and unconventional way of explaining issues surrounding the ICT sub-cultures present in organizations. Moreover, her study grounds a theory that identifies the differences and implications that can cause conflict about ICT. The theory is designed to help leaders and ICT managers understand the underlying assumptions found in members of their organization, make them aware of their persistence and values, recognize the signs of cultural change, and anticipate how these factors will affect their decisions about ICT. Leidner and Kayworth (2006) recognized the Kaarst-Brown study for its unique approach of considering cultural assumptions about ICT, as opposed to the many studies they cited about the value associated with information. They extolled the theory as “groundbreaking” (Leidner & Kayworth, 2006, p. 371) and useful for providing insights in ICT research.

The IT Culture theory set forth by Kaarst-Brown (1995) and as described by Kaarst-Brown and Robey (1999) has been applied in subsequent research and other contexts. Kaarst-Brown (2005) published an article demonstrating how her theory of underlying assumptions about IT impacted executive-level information technology leaders, *i.e.*, chief information officers (CIO’s), and why some CIO’s enjoy more influential and effectual executive roles than others. Kaarst-Brown showed how underlying cultural assumptions about technology present in the CIO’s organization ultimately affected the CIO’s relationships with business, level of status, and influence. Again, the differentiating assumptions found in IT cultural dimensions were organized into the five archetypal patterns Kaarst-Brown established by her original theory (1995)—the Fearful, Controlled, Revered, Demystified, and Integrated ICT cultures. Table II-12 describes how the five dimensions cluster with five distinct cultural archetypal patterns applicable to the CIO (Kaarst-Brown, 2005).

ARCHETYPE DIMENSION	FEARFUL	CONTROLLED	REVERED	DEMYSTIFIED	INTEGRATED
WHO SHOULD CONTROL ICT DIRECTION	Let's not control it, let's avoid it because IT is out of control	Corporate business executives should control IT direction	IT professionals should control IT direction	Each business unit should control its own IT direction	Control should be shared by IT professionals and business units
CENTRALITY OF IT TO BUSINESS STRATEGY	Not assumed to be central to business strategy	Must have senior business champion or sponsor	Crucial at corporate (strategic) level	Important at operational or tactical levels	Balanced importance depending on issues
VALUE OF IT SKILLS AND KNOWLEDGE	Not valued; potentially a threat	Business knowledge superior; IT second class but used when needed	IT skills highly valued and rewarded	IT knowledge and/or skills required at mid-managerial and staff business levels	IT skills valued as partnered with business skills
JUSTIFICATION FOR IT INVESTMENT	No choice but to adopt IT solution as a survival measure	To reduce costs and/or staff (or at executive decree of benefits)	R&D; innovation; to improve or create new services	Improved services; personal productivity and unit level services	Customer oriented; problem-specific
BENEFICIARIES OF IT (WINNERS OR LOSERS)	Non-IT staff will lose; no one wins	Staff may lose; organization wins; IT staff may suffer demands	IT staff wins; organization and clients win	Business units win so organization wins IT may lose if shut out of projects	Selective losses; organization and customers win

Table II-12. IT Culture dimensions that cluster with the five cultural archetypal patterns and their impact on CIOs and other technology leaders (Kaarst-Brown, 2005)

Kaarst-Brown's (2005) paper shares the functional and dysfunctional impacts of cultural assumptions for CIO's and the adoption or support for ICT. This also shows the relationship with technology leaders' goals to affect organizational change regarding ICT. By considering the underlying categories of assumption dimensions underpinning her original IT Cultural archetypes, Kaarst-Brown (2005) enables researchers to move beyond the metaphorical archetypes into testable research using other methods. Kaarst-Brown's research helps link specific assumptions about ICT. This link offers concrete ways organizational leaders can anticipate reactions to ICT within their organizations and maintain strategic relationships to increase the chance of success in ICT initiatives.

These dimensions provide a foundation for future research designs of differing scopes and sizes, supported by findings from two early pilot studies that sought to validate the IT cultural dimensions and explore questionnaires, follow-up interviews, and visual methods for tapping into the IT Culture (Kaarst-Brown, 1998; 2002 unpublished). IT Culture theory was also proposed by Kaarst-Brown and Guzman (2010) as a mediating perspective when compared with Guzman's (2006) theory of IT Occupational Culture and Commitment in a paper on individual choices of STEM (science, technology, engineering, and mathematics) education and occupations. The authors explained how cultural assumptions about ICT among students could affect their *attraction* to ICT and STEM education and careers.

Table II-13 combines their view of how the IT Culture view could be adapted to the context of STEM educational choices, as well as comparing to the previous studies.

ARCHETYPE (KAARST-BROWN, 1995)	SYMBOLIC MEANING (KAARST-BROWN & ROBEY, 1999)	ICT STATUS (KAARST-BROWN, 2005)	APPLICATION TO CONTEXT (KAARST-BROWN & GUZMAN, 2010)
Fearful	ICT are dangerous	Very low	<ul style="list-style-type: none"> • ICT are potentially dangerous and disruptive • Occupations that require ICT use should be avoided
Controlled	ICT must be constrained and controlled	Low	<ul style="list-style-type: none"> • ICT education is not particularly valued • ICT occupations are less desirable than non-ICT ones
Revered	ICT is powerful	High	<ul style="list-style-type: none"> • ICT education is valuable • ICT occupations are highly desirable
Demystified	ICT is harmless and manageable	Low	<ul style="list-style-type: none"> • No special ICT training needed • ICT are used in just about every occupation anyway
Integrated	ICT are useful resources	Equal	<ul style="list-style-type: none"> • ICT education is of equal importance to other disciplines • ICT occupation choice is based on aptitude and interest

Table II-13. Kaarst-Brown and Guzman's (2010) extension of IT Culture (Kaarst-Brown & Robey, 1999; Kaarst-Brown, 1995, 2005) to issues of student choices about ICT-related STEM education and careers

Kaarst-Brown and Guzman (2010) also provide guidance towards several ideas relevant to this thesis project. First, the authors argue that traditional “cultural” variables applied to STEM research often look at demographics such as ethnicity or gender, rather than getting to the root of underlying assumptions about technology and related choices, such as that of STEM education or

occupations. Second, they argue that many cultural studies of IT and STEM education and careers tend to only sample those who are already attracted to IT. Kaarst-Brown and Guzman's (2010) paper proposed reaching out to and sampling those populations underrepresented in IT careers, *e.g.*, females, minorities, and older individuals. In this way, it is possible to determine what underlying assumptions about IT exist rather than rely on stereotypes and societal myths about IT education or an IT-related occupation.

In an earlier paper, Kaarst-Brown and Guzman (2008) argue for more cultural studies that seek to understand deeper assumptions about ICT's and their impact, highlighting methodological considerations. They point out that many scholars see cultural studies as requiring time-consuming ethnographies. Such methods may be difficult to link to direct outcomes or practical applications. Drawing on two publicly available dissertations, their paper argues convincingly that practical insights can be gleaned through a variety of less time-intensive methods, including mixed-method studies utilizing questionnaires, focus groups, and interviews (Kaarst-Brown & Guzman, 2008).

The IT Culture Theory (Kaarst-Brown, 1995) has been demonstrated to have potential applicability beyond its original scope in two insurance companies, including academic, IT leadership, and other settings (Kaarst-Brown, 2005; Kaarst-Brown & Guzman, 2010). However, the theory has not been extended to a specific ethno-cultural setting until this thesis project. The previous analysis of other ICT research in Native American or indigenous populations, however, supports building on IT Culture theory. (See Table IV-1 on page 112.) Thus, this thesis study extends the IT Culture theory into an ethno-cultural context to develop key insights about the role of ICT in Choctaw heritage preservation.

Just as the underlying assumptions theory was proposed as an alternative view of students' attraction to ICT (Kaarst-Brown & Guzman, 2010), the same theory is proposed to study the Choctaw people's assumptions about technology and their impact on an ICT for cultural heritage

preservation and sharing. In Chapters IV and V, the theory is used to dispel stereotypes, myths, and assumptions that Native Americans with limited access to ICT resources will automatically avoid ICT in favor of more traditional means of cultural expression and inform the Tribe of opportunities to use ICT in a way that affirms their spirit of self-determination.

Through the selection of IT Culture as the theoretical framework for this thesis research and the way it is applied in the Choctaw context, I explored these three research questions:

1. How appropriate is and how well does the IT Culture theory fit in an ethno-cultural context such as the Choctaw Nation of Oklahoma?
2. What are the implications of Choctaw IT Culture on future ICT development and adoption among the Choctaw related to cultural heritage preservation and sharing?
3. How well does a mixed-methods approach apply the IT Culture theory, as opposed to the original ethnographic design used by Kaarst-Brown (1995)?

Focusing on the five IT Culture dimension categories and their differentiating assumptions drove methodological decisions in this thesis. These methodological decisions, adaptations, and their rationale are presented in the next chapter.

CHAPTER III. RESEARCH DESIGN

Using the foundational literature presented in the previous chapter, a methodology was developed to investigate how cultural assumptions about ICT impact its role in Choctaw heritage preservation and sharing. Drawing upon the theory of IT Culture (Kaarst-Brown & Robey, 1999; Kaarst-Brown, 1995, 2005) provides an advantage upon which *a priori* constructs and definitions can be drawn upon. This thesis study is among the first direct applications of the IT Culture theory in a different ethno-cultural context and social structure. Rather than a direct replication of the ethnographic and grounded theory methods used by Kaarst-Brown, the research design in this thesis is a mixed-method approach that seeks to apply and test the IT Culture theory as a lens to understand the research question, as well as validate a less time-consuming method for identifying dominant underlying assumptions and IT cultural patterns.

The purpose of this chapter is to describe the design of the research project and the rationale for decisions made regarding its methodology and execution. The overall research design for this study includes three phases:

1. A familiarization phase where the researcher focuses on key issues for the Tribe, the literature, and the process of research among the Choctaw;

2. A pilot study phase during which the researcher tested a visual methodology to elicit responses about ICT and Choctaw culture; and
3. The mixed method design phase (conducted in the fall of 2012) that applied the IT Culture theory and collected data on underlying assumptions of ICT among culturally aware Choctaw.

Conducting Research with the Choctaw

As a prelude to this discussion of the methods used in this study, it is important to consider the reflexive position of the researcher (Srinivasan, 2006b) and the standard of accountability that is held throughout the thesis study (Dourish & Button, 1998). Nielsen and Gould (2007) reviewed the ethical considerations of a non-Native researcher conducting research with Native American tribes, including the following that had methodological considerations in this research study. This research study:

- Recognized the Tribe's rights to self-determination and allowed them to determine the goals of the research, who participants were, the depth of the study, which methodology was used, how data was used, and what results were kept private or made public;
- Ensured proper protocols by having the research reviewed by the Tribe's own Institutional Review Board;
- Allowed the community to have editorial rights to the final paper, which ensured the Tribe's culture and community were portrayed fairly and accurately; and
- Made sure the community benefitted from the study by giving them something meaningful to them and of a tangible nature that helped develop the Tribal community.

Authorization to Conduct the Research

In light of these considerations, the research was first authorized. The Chief of the Choctaw Nation of Oklahoma, Gregory E. Pyle, is the highest-ranking executive leader of the Tribe and duly elected by its members. Chief Pyle swore to uphold what is in the best interest of the Tribe and its members. He signed a letter that authorized the conduct of this research study in accordance to Federal Regulations (CFR 46, Title 45) and the Belmont Report. Also, Stacy Shepherd is the Director of the *Chabta* Foundation, appointed by their Board of Directors. She also signed a letter inviting and authorizing me to conduct this research as a part of their storytelling project on behalf of the Board. (See IRB Application and Letters of Support in the appendices.)

Two Institutional Review Boards

A key ethical consideration in the conduct of this research involving human subjects is whether those involved in the study will be caused due harm as a result of their participation (Bernard, 2011). Universities have long had Institutional Review Boards, or IRBs, as internal agents to review ethical issues present within research studies. In addition, the Choctaw Nation of Oklahoma instituted its own IRB. Historically, many researchers approached the Tribe to conduct research with its members, particularly on matters of health and social issues. However, some of those studies resulted in “problems,” according to the Choctaw’s IRB Director (D. Wharton, personal communication, June 7, 2012). The main concern came not from how Choctaw Tribal members were treated in the study, because many of the researchers had IRB-approved protocols, but in how Choctaws were portrayed in the disseminated research articles, white papers, and other publications. Often the depictions were unfair or imbalanced, highlighting only the ills. Therefore, the Choctaw IRB was created not only to monitor the conduct of research, but also to reserve editorial rights over any writing or results prior to its dissemination or scholarly publication. This condition extends to this thesis, as well as prior research I conducted with the Tribe (Dolezal, 2011;

Kaarst-Brown & Dolezal, 2012). Dissemination of previous work passed their editorial review without modification as it was determined that it fairly depicted Choctaw people and the Tribe as a whole.

The research protocol described in this chapter was submitted for approval to the IRBs at Syracuse University and the Choctaw Nation of Oklahoma. Both Syracuse and the Choctaw IRBs approved the application. In official letters, they stated that the research protocol falls within one of their five categories for exemption from IRB full board review and meet their ethical standards. (See IRB Application and Letters of Support in the appendices.)

The Issue of Bias and the Researcher's Role and Relationship within the Context

In performing research with indigenous people, it is important to consider the effect of my presence as the researcher on what is being investigated (Tuhuwai Smith, 1999). Thus, my role and relationship to the Tribe are points of interest.

I am the Senior Director of Tribal Research. In my work, I manage information about the quality of life (*e.g.*, Dolan & White, 2006) and design and develop non-cultural data management systems that informs leaders and decision makers. Leading up to this thesis project, I was asked to investigate the possibility of cultural heritage being expressed and shared in a digital space. As a professional researcher and employee of the tribe over seven years and as a resident within the Choctaw Nation for over three decades prior to the project, I have had the opportunity to work with the Choctaw in a variety of settings. Through my professional position within the tribe, I built a modest level of trust and rapport with this population that I would not otherwise have had. I was not born a Choctaw or even a Native American. Despite this, I successfully gained a certain level of access with some tribal government officials and citizens.

This was not an instantaneous occurrence but a gradual and diligent process that earned the trust of key leaders and community members. I have observed the tribal government, interacted with

government officials and tribal members, and witnessed firsthand the ways they strove to improve their quality of life. During the course of this personal and professional interaction, I have worked closely with the Chief, tribal leaders, and employees within the governance arm of the tribe. I also have interacted with many Choctaw people, young and old, at tribal festivals, ceremonies, community dinners, and other events. Through these professional and social encounters, I have acquired a good deal of “street knowledge” about the Choctaw people. In turn, many of them came to know me and allowed me to participate and become aware of their cultural expressions. They have afforded me a level of trust and access to make a study such as I conducted possible.

Again, however, I am not a Choctaw. I do not know what it is like to be Choctaw. I do not share their traditions or their histories. I am an outsider. However, I am reflexive of the effects my presence had on the research. First, I considered the differences in status characteristics between my participants and me (Ridley, 2008). I discuss the specific techniques I utilized to minimize the bias inherent in status characteristic differences later on in this chapter (page 99). Second, I committed to the integrity of the research by reporting the data *as it came to me*. In Chapter IV, I promote the transparency of my findings by offering many direct quotations of my participants. By doing so, I show that I am not filtering their responses. Also, I was aware that the life experiences, assumptions, and espoused values about technology among my participants were, in some cases, quite different than mine (Gordon, Miller, & Rollock, 1990). Yet, I also have great respect for the Tribe and a strong desire to do no harm. There were several occasions when I was asked to turn the tape recorder off or to not use something in particular as a part of the study. I fully respected those wishes (Nielsen & Gould, 2007).

Also, one might contend that because of the Choctaw IRB editorial review and my status as an employee of the Tribe, the Tribal government had influence over my research. This was not so. First, the Choctaw IRB made no alterations to the thesis document and affirmed that my research

did no harm. Second, the Tribal government had no direct influence over my research. No one asked to see my data. No one directed me to alter my interpretation or analysis. Aside from the Chief writing a letter authorizing me to conduct the research, the Tribal government was not involved. In addition, there was no incentive placed on this research, nor was it part of my official duties with the Tribe. I identified the research problem and conducted the research independent of my “day job” and its duties. I derived no benefit from this research except for what I learned as a scholar-practitioner. Third, I was concerned with bias where my participants might only say what they believed the Tribal government or I wanted to hear. The research design combats this bias in a way similar to Donaldson and Grant-Vallone (2002) by multiple methods for collecting data across multiple dimensions.

The *Chabta Sia*¹⁰ Pilot Study

As noted earlier, my research activities extended beyond a review of the literature. I conducted an exploratory pilot study in the late summer of 2011. A description of this project is warranted to understand the direction of the actual thesis project.

By the summer of 2011, exploration of the literature resulted in a keener awareness of the methodological challenges that I faced, despite my good relations with the Choctaw people. Still unsure of the exact research design for a full thesis project, I got my feet wet in this context by conducting a pilot study. The exploratory pilot study, *Chabta Sia* (Kaarst-Brown & Dolezal, 2012), was a nontraditional qualitative design, because it provided many opportunities for cultural discourse prior to designing and conducting a larger mixed methods study. The original intent of the pilot project was to engage a subset of the Choctaw community in a small research study. The purpose was to gauge their reactions to a study involving their cultural heritage and technology.

¹⁰ “*Chabta Sia*” is a Choctaw phrase that literally means, “I am Choctaw.”

The exploratory research design used in the *Chalita Sia* pilot study drew inspiration from the Brownfields Opportunity Areas Program led by Maren King (2008)—a community-based approach of local strategic planning through the use of *participant prepared* visual images. The purpose for using a visual methodology was to encourage community participation, uncover local values, and synthesize the results in relation to the exploratory research questions. Language-based research methods are prominent in social science research and cultural research; however, Mirzoeff (1999) and Rose (2005) asserted that we have become increasingly visual through the multitude of visual media forms and ICT available in modern times where information and meaning are portrayed in, sought, and consumed through visual ICT. Moreover, participatory visual methodologies, such as photography, offered a nuanced depiction of reality and offered an engaging way to work with participants (Wang & Burris, 1997). The pilot study was carried out with two distinct phases:

1. We provided digital cameras to eight multigenerational Choctaw families and asked them to take photographs of objects they felt were most or least representative of the Choctaw; and
2. We posted 25 of the photos on a board at a large Choctaw festival and asked participants to vote on which images were most meaningful to them by sticking colored dots on them.

In the first phase, the participant families took a number of photos depicting a wide diversity in cultural objects and places; however, not a single photo included a modern ICT. Some photos that did include ICT were needed. Therefore, we deliberately modified four of the 25 photos to create surrogate cultural photos that depicted an ICT, introducing four “ringers.” The original photographs were manipulated to show a recognizable ICT artefact in such a way that the ICT was shown in an active role of cultural expression. For example, a photo of a Choctaw yielding stickball¹¹ sticks was superimposed over a fictitious Facebook webpage of Choctaw stickball (Figure III-1).

¹¹ Stickball is a traditional Native American game played by the Choctaw and other tribes from which the modern sport of lacrosse was derived.



Figure III-1. *Chahta Sia* example of a photograph manipulated to become an ICT “ringer”



Figure III-2. The *Chahta Sia* display board with photos and participant dots affixed

For the second phase, the ringers were reinserted into the set of unaltered images and affixed to a large whiteboard in a grid layout. The white board (Figure III-2) was placed in a prominent location at the large Choctaw cultural festival. The researchers were not present, so instructions and signage directed participants to take a card that had four stickers affixed to the corner—three green dots numbered “1”, “2”, and “3” and one red dot with an “X” printed on it. The instructions mounted on the board asked the participants to stick the green dots on the three photographs they felt were “the most Choctaw to them.” They were also asked to stick the red dot on the image they thought was “the least Choctaw.” By the end of the festival, the board had nearly 100 participants.

The study was not necessarily conclusive in discovering what types of images Choctaws deemed to be most significant, because Choctaws differed in their opinions on what objects were most cultural. Also, we did not consider these limited findings definitive on the issue of whether or not Choctaws will accept using ICT to portray cultural images. Despite this, the study yielded many benefits we did not expect, such as the discourse that Choctaws engaged in about their culture when the visual images depicting cultural objects were placed before them. Before and after the dot-sticking phase, many of the participants or observers of the white-board offered stories, accounts, and personal meanings they held of the cultural objects depicted by the photographs. Evidenced by their willingness to engage with us, we discovered the *eagerness* of many Choctaws to express their voice and experiences with their culture. Opportunities for discourse came during preparation and approval stages (access), during the execution of both phases, and after the completion of the study.

For example while preparing for the study, I came into contact with a full-blood Choctaw who gave us insight about interview protocols with Choctaws. He said,

If you ask something of an elder, speak deliberately and slowly, and when you're finished, be completely silent. If the elder doesn't respond right away that means he or she is thinking, and you should be silent and even slowly nod to acknowledge and respect his or her time of contemplation. Then the Choctaw will respond when he or she is ready. To try and talk while they're thinking would be as rude as interrupting them while they were talking, and possibly more so. (O. Williams, personal communication, July 21, 2011)

He also questioned the notion of "digital" with respect to his culture. "To the Choctaw, what is 'digital'? We have no word for that. Our elders won't want to talk about digital things, because to them that's meaningless" (O. Williams, personal communication, July 21, 2011). The caution about conversational protocol was an invaluable methodological and cultural consideration. Also important was the realization that the lack of a word for "digital" in the Choctaw language highlighted a potential tension between cultural heritage and preservation in a digital format.

Second, during the conduct of the study we found that some cultural knowledge was highly personal and the potential for conflict between traditional and contemporary values among the

Choctaw. For example, one Choctaw woman reminisced, “It was July in Oklahoma, so of course it’s hot and sticky. We would sit under a huge old tree in the evenings and listen to my grandmother tell stories in Choctaw, because she knew very little English” (personal communication, July 29, 2011). Her grandmother has passed away. There were photos of the cabin, but when asked if she had had a video camera would she have wanted to record the storytelling, she became tearful and said she would. One issue that emerged and influenced the final thesis design was the importance of the family unit or collective view, rather than simply the individual impressions. This was especially important because of the strong matriarchal family structure and the importance of the elders as both carriers and transmitters of cultural memories.

Third, opportunities for discourse continued after the study. There were 21 participants who indicated on a card that they would be willing to be contacted after the study for follow-up. In addition, however, the unexpected discourse with participants and observers of the pilot study provided insights into methodological challenges and opportunities.

The Chahta Sia pilot study was a pivotal point in the development of this thesis project. Until then, the focus of research with the Choctaw and the role of ICT in their cultural heritage preservation had been on either the eventual ICT *products* (e.g., a digital library and community-created media) or the *creation* of those ICT products (e.g., their design and community participation). While important issues, the lack of an ICT did not necessarily indicate the need to rush out and create one. The Choctaw culture persisted for hundreds of years, lasted through the Indian Removal Act of the mid-nineteenth and Federal termination policy of the mid-twentieth centuries, and was alive and well (Smithsonian Institute, 2011)—all without the aid of a community ICT. So before we inserted an ICT into this cultural stream, it was asked whether or not it was even needed or wanted by the tribal community, how important an ICT was, who would control it, and who would benefit.

The *Chabta Sia* pilot project spawned these questions as the pilot study hinted at underlying assumptions, beliefs, and attitudes embedded in the Choctaw culture when an ICT (*i.e.*, the digital camera) was introduced in a cultural heritage context. The elder who cautioned us that there was no word for “digital” in the Choctaw language and the tearful-eyed woman who wished she had had a video camera to record her now-deceased grandmother’s storytelling informed that the *presence* of ICT in their culture presented both positive and potentially unwanted or unexpected effects. It led to the realization that an understanding of the underlying beliefs about ICT informed if and how an ICT should be created for their heritage preservation.

The exploratory pilot study provided insights into the methodological design of the thesis project. The project created a network of contacts that later introduced me to families for the sampling pool (Collier, Jr. & Collier, 1986). In some cases, I was remembered as “the photo guy.” *Chabta Sia* also helped with the wording of instrument questions by reinforcing my knowledge of proper terminology and appropriate language to use when bridging from a more generalized organizational context to a specific ethno-culture (Streib, 1952). It was during the pilot study that I was told surveys with the Choctaw would be “wasted stamps” (L. Goodwin, personal communication, December 19, 2011) unless I worked with each participant in person. In addition, the pilot study improved my knowledge of the context through direct observations that proved useful when developing the schema for interpreting the data (Geertz, 1973), *i.e.*, the codebook (see Appendix C). The combination of what was learned during the pilot study phase and all my experience with the Choctaw over the past seven years lent confidence to the research design used during this project.

Research Design: A Mixed-Method Strategy of Inquiry

Over the past quarter-century, the menu of choices researchers have when making methodological decisions has greatly expanded (Creswell, 2003). It is no longer a matter of quantitative versus qualitative studies and their respective assumptions, but a spectrum that lies between (Greene, 2008). However, with these freedoms comes the responsibility to rationalize and justify methodological choices (Kaarst-Brown & Guzman, 2008). The following sections discuss the methodological decisions made in developing the mixed method design and the specific techniques used to elicit the data for this study, including how the instrument for eliciting the data was derived from the theoretical underpinning—IT Culture (Kaarst-Brown & Robey, 1999; Kaarst-Brown, 1995, 2005). As an overview, Table III-1 is an outline of the research design.

THEORY/FRAMEWORK	IT Culture (Kaarst-Brown & Robey, 1999; Kaarst-Brown, 1995, 2005)
PARADIGM	Pragmatic with transformative procedures (Creswell, 2003; Mertens, 2003)
DESIGN	Mixed methods , <i>viz.</i> , a nested concurrent strategy (Creswell, 2003), with structured interviews (in-person with possibly some by telephone) using a mixed-use questionnaire , <i>i.e.</i> , 5 closed-ended survey questions, 10 open-ended interview questions, and 10 closed-ended demographic and ICT use questions (see <i>Appendix 1</i>)
SAMPLING	Combination of non-probability (culturally-specialized key informants) and probability (simple random sample) sampling of multi-generational, culturally-respected Choctaw families who participated in the <i>Chabta</i> storytelling project resulting in 26 interviewees
ANALYSIS	A combination of deductive coding (using the codebook derived from the theoretical model in <i>Appendix 3</i>) and inductive coding to discover alternative explanations beyond the theoretical model along with a convergence of the quantitative survey question and demographic data and validated using various techniques (<i>e.g.</i> , intercoder reliability, Cohen's <i>kappa</i> , "thick" descriptions, <i>et cetera</i>)

Table III-1. Summary table of methodological decisions made for the thesis project

Pragmatic Paradigm

Pragmatism is a relatively new paradigm compared to the classical epistemologies of postpositivism and interpretivism. Pragmatic scholars often elect not to participate in the postpositivist/interpretivist debates (Rorty, 1983, p. xiv). Instead, they use the strengths from both quantitative and qualitative approaches to develop mixed-method strategies. For these reasons, many

scholars (Creswell, 2003; Mertens, 2003; Patton, 1990; Rorty, 1983) recognize pragmatism as a standalone paradigm and an alternative to postpositivism, interpretivism, and critical epistemologies.

Pragmatic claims to knowledge are called for when there are realistic situations, proposed actions, and potential consequences for those actions (Creswell, 2003). Pragmatism is primarily concerned with what works (Patton, 1990), and from this philosophy, decisions about theory and methods are made. Creswell (2003) provided multiple bases that underpin the pragmatic paradigm:

- Pragmatists lean towards mixed methods research and liberally employ both quantitative and qualitative assumptions and techniques in their research;
- Pragmatists enjoy the freedom to choose methods and procedures that best meet the needs of the research problem at-hand;
- Pragmatists collect and analyze data using different approaches without total reliance on quantitative or qualitative means;
- Pragmatists typically answer “what” and “how” research questions and establish a rationale for the methods they choose; and
- Pragmatists are reflexive of the context in which their research is situated and the context’s social, historical, cultural, and political considerations (Creswell, 2003, p. 12).

At its heart, understanding the role of an ICT in Choctaw cultural heritage preservation and sharing is pragmatic. There are practical and realistic needs to establish whether or not an ICT is the best route for the Choctaw to preserve and share their culture. There are also potential consequences from implementing an ICT for cultural heritage preservation. The research questions in this study are all “how” questions. Lastly, there are social, historical, cultural, and political considerations to make in this study with the Choctaw Nation. All of these facts point to the pragmatic research paradigm as a strong epistemological choice.

Additionally, pragmatic research can serve a larger transformative process and facilitate change and advocacy (Mertens, 2003). In transformative procedures, a theoretical lens is used in a research design that collects and analyzes both quantitative and qualitative data. The theory serves as a framework to focus on the topic, make methodological decisions, and produce useful outcomes or anticipate consequences and changes (Creswell, 2003, p. 16). To decide whether to use transformative procedures, Mertens (2003) gives a list of questions researchers should answer. Table III-2 lists those questions and responses when applied to the research problem at-hand.

Since I was able to answer every one of Mertens' questions affirmatively, the use of transformative procedures lends confidence to the decision of using transformative procedures. The selection of the pragmatist paradigm and transformative research procedures for this project represents the first of many methodological decisions made for this research study.

The Mixed Methods Nested Concurrent Design

The decision was made to use a mixed-method approach for this study by taking the following factors into consideration, including the:

- Research problem,
- Pragmatic paradigm,
- Timeframe (both in terms of the organization's needs and the degree program),
- Balance of rigor and practicality,
- Context and cultural considerations,
- Lessons from the literature, and
- Utilization of the theoretical framework.

MERTENS (2003) CRITERIA FOR PRAGMATIC TRANSFORMATIVE RESEARCH	RESPONSE TO QUESTIONS
Concerning the research problem and literature	
<ul style="list-style-type: none"> Did you deliberately search for literature that concerns the Choctaw Nation, Native Americans, and indigenous people, in general? 	<ul style="list-style-type: none"> Yes, the literature has been addressed in Chapter II.
<ul style="list-style-type: none"> Did the research problem arise from a direct concern of the Choctaw? 	<ul style="list-style-type: none"> Yes, the <i>Chabta</i> storytelling project began as a community-led initiative as a direct response to the growing desire to preserve the cultural knowledge of their elders before they pass away.
<ul style="list-style-type: none"> Did your approach arise from spending quality time with the Choctaw? 	<ul style="list-style-type: none"> Yes, I have worked closely with the Choctaw for over seven years.
Designing the research	
<ul style="list-style-type: none"> Does your research design respect ethical considerations o the Choctaw? 	<ul style="list-style-type: none"> Yes, I will employ the strategies suggested by Nielsen and Gould (2007) for working with Native American tribes.
Identifying data sources and selecting participants	
<ul style="list-style-type: none"> Were the Choctaw once a group associated with discrimination or oppression? 	<ul style="list-style-type: none"> Yes, the oppression and assimilation of the Choctaw has been well documented in the literature by scholars like Lambert (2007c).
Identifying data collection instruments and methods	
<ul style="list-style-type: none"> Will the data collection process and outcomes benefit the Choctaw? 	<ul style="list-style-type: none"> Yes, the study has been designed <i>for them</i>—to address a need stated by the Tribe.
<ul style="list-style-type: none"> Will the research findings be credible to the Choctaw? 	<ul style="list-style-type: none"> Yes, 1) the Chief approves of this research, and 2) Choctaw cultural experts and elders validated the findings.
<ul style="list-style-type: none"> Will the data collection open up avenues for participation in the change process? 	<ul style="list-style-type: none"> Yes, the protocol ensures that participants' voices are heard on the matter of cultural heritage preservation via an ICT.
Analyzing, interpreting, and using the results	
<ul style="list-style-type: none"> Will the research examine subgroups within the Tribe? 	<ul style="list-style-type: none"> Yes, units of analysis are multi-generational families, and demographics of gender, age, and blood quantum inform us of differences in assumptions within the Tribe.
<ul style="list-style-type: none"> Will the results help understand power relationships? 	<ul style="list-style-type: none"> Yes, the theoretical model specifically examines power issues such as control of ICT, centrality of ICT, investment in ICT, and the beneficiaries of ICT.
<ul style="list-style-type: none"> Will the results facilitate social change? 	<ul style="list-style-type: none"> Possibly, the Choctaw may elect to use ICT for their cultural heritage and sharing and consequently introduce a new element in that process.

Table III-2. Questions for researchers conducting transformative-emancipatory procedures, adapted from Mertens (2003)

Specifically, the study employs a nested concurrent transformative strategy as defined by Creswell (2003). A concurrent strategy was selected for practical reasons, as the concurrently conducted methods were executed simultaneously, saving time over a sequential strategy. Also, a nested strategy was chosen for practical and theoretical verification reasons, as the same individuals participated in both the quantitative and qualitative methods during the same interview session—as opposed to a triangulation approach where they would have been conducted separately or with different participants.

As shown in Figure III-3 below (Creswell, 2003, p. 214), the nested concurrent model allowed me to collect qualitative and quantitative data simultaneously. The nested concurrent data collection techniques were embedded in the IT Culture theory. Also in this figure, one can see how the quantitative methods (of a lesser priority) are nested inside the predominant qualitative ones. A feature of this nesting is the ability to gather data at different levels, *i.e.*, a multi-level design (Tashakkori & Teddlie, 2003).

There are many advantages to the nested concurrent strategy (Morse, 1991). First, the quantitative data enriches an understanding of the participants. This advantage was found in the *Chabta Sia* pilot study (Kaarst-Brown & Dolezal, 2012). While the most important outcome of that study was the qualitative “opportunities for discourse,” the quantitative data captured from the participants was informative of the effects age, geography, and Choctaw blood quanta had on the participants’ preferences for photographs with ICT embedded in the cultural depiction. “Unless demographic variables were taken into account, even basic ethnography would be misleading and inadequate” (Kertzer & Fricke, 1997, p. 10) Second, the qualitative aspect of the nested concurrent strategy gives insights to measurements

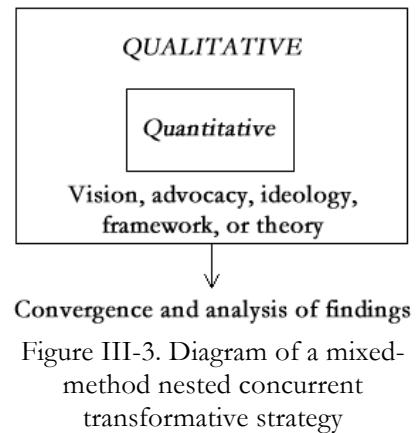


Figure III-3. Diagram of a mixed-method nested concurrent transformative strategy

that are unquantifiable. Third, the strategy permits the researcher to more efficiently collect data by leveraging both the quantitative and qualitative aspects of the study simultaneously.

The strategy is not without disadvantages, however. While gains in data collection efficiency are realized, the analysis and interpretation stage of the study became more complex. There is little guidance for researchers on the best way to integrate the quantitative and qualitative data to form a cohesive result or how to resolve discrepancies that emerge between the two (Creswell, 2003; Greene, 2008; Meho, 2006). Due to the depth achieved in qualitative studies, a smaller participant count ($n=26$) in this thesis was necessary for feasibility's sake, and consequently the smaller numbers made the quantitative findings weaker. So the question became, why not survey a wider sample beyond the interview sample? That might have been possible, but the outcome may not have been helpful. Alternatively, I argue using a sample of Choctaws who are *directly faced* with the possibility of an ICT mediating a part of Choctaw culture that is *personal* to them. If I survey people for whom this is not even on "their radar," would they care enough about these issues to offer thoughtful responses? It would have been akin to asking people who have never played or even seen a basketball game about their feelings about the game. Certainly, the Choctaw people have seen technology, but they have never "seen" their culture widely portrayed using ICT. The *Chakta* storytelling project gave us a unique opportunity to catch people at the moment an ICT is directly impacting a part of their culture.

Also, a widely dispersed survey was not used, because such a strategy:

- Could not have achieved the *depth* of understanding offered in the rich descriptions of qualitative studies or allowed the introduction of new variables (Creswell, 2003);
- Could have introduced ethical and ethno-cultural issues to consider with Native American populations (Briggs, 1986; Colorado, 1988);

- Mailed survey return rates of only around 33% were found with Native American in past studies (Duffy & Stubben, 1998; Julnes, 1994); and
- Would not have been feasible as a “suitably large” (Bernard, 2011, p. 137) sample required over 4,500 participants¹².

Keep in mind, the theoretical underpinning chosen for this study—IT Culture (Kaarst-Brown & Robey, 1999; Kaarst-Brown, 1995, 2005), which was grounded in an organizational culture context—has not yet been utilized in an ethno-cultural, much less a Native American, context. We did not know prior to this thesis study if IT Culture theory is fully compatible and portable over to the Choctaw context. It was found as the theory was bridged from an organizational to an ethno-cultural context that the framework needed to be adapted—much as it was for an educational setting in Kaarst-Brown and Guzman (2010). Thus, an interview strategy with a mixed-use questionnaire (with both qualitative and quantitative questions) was selected.

Nested concurrent mixed methods strategies permitted both open-ended and closed-ended questions on the same instrument during the same interview and also both statistical and textual analysis during the interpretation phase. Approaching interviews from a “survey” perspective allow the researcher to:

- Ask both open- and close-ended questions;
- Guide the sequence of questions; and
- Observe the social and cultural context (Schutt, 2006).

At the same time, interviews allow for the flexibility to acknowledge new topics introduced by interviewees through open-ended commentary by participants near the end of the interview

¹² Considering a population of over 200,000 Choctaw members worldwide, an *n*-count of 1,525 at a confidence level of 95% and a confidence interval of $\pm 2.5\%$ was recommended. However, figuring in an estimated return rate of 33% (Duffy & Stubben, 1998; Julnes, 1994), a statistically significant result required a survey of 4,621 Choctaws around the world! Couple that with the fact that 29% of Native Americans nationwide had less than a high school education (Bauman & Graf, 2003), which was the highest of any ethnicity), and the survey return rate may actually come in lower.

(Kvale & Brinkman, 2009). A survey with closed-ended questions would not allow the introduction of additional responses. The interview techniques overcame the weaknesses of the mixed methods strategy by converging the final results.

The types of questions addressed and cultural considerations made in the context of this study are considered in Table III-3. The table shows the predominance of the qualitative component over the quantitative one in the nested concurrent strategy and the utility of closed-ended questions in addressing the research problem.

In summary, the methodological decision was made to utilize survey-type questions nested within a structured interview. The purpose of this design was to gather some measureable, quantifiable data identifying the underlying assumptions about ICT within the Choctaw participants using survey instrument questions adapted from the ICT Culture theory (Kaarst-Brown & Robey, 1999; Kaarst-Brown, 1995, 2005). The open-ended interview questions allowed the participants to explain their selection and explore other factors that affected their assumptions about ICT. It also elicited their feelings on how ICT was to be used in their cultural preservation and sharing. Next, the discussion segues into the instrument questions and how they were developed.

QUESTIONS/CONSIDERATIONS	QUANTITATIVE (SURVEY)	QUALITATIVE (INTERVIEW)
• Measuring the effects of demographics, <i>e.g.</i> , age, geography, Choctaw blood quantum (Kaarst-Brown & Dolezal, 2012)	X	
• Measurement of cultural archetypal patterns (Kaarst-Brown, 1995)	X	X
• Extension of the theory into a new context (Kaarst-Brown & Guzman, 2010)	X	X
• Introduction of new elements (Kvale & Brinkman, 2009)		X
• Allowing the community to determine direction (Nielsen & Gould, 2007)		X
• Most effective strategy for Native American participants (Briggs, 1986)		X
• Considers the Native perspective, feelings, and trust (Colorado, 1988)		X
• Integrating the results of the study (Creswell, 2003)	X	X
• Best addresses the research question (Creswell, 2003)	X	X

Table III-3. The methods that best suit the questions and consideration required by this study

Questionnaire Development

The intent in creating the data collection instrument was to cover the breadth of data needed to measure the presence of underlying assumptions drawn from ICT Culture theory (Kaarst-Brown & Robey, 1999; Kaarst-Brown, 1995, 2005) while also allowing for depth to explore the additional assumptions that resulted from applying the theory to an ethno-cultural setting. The survey questions were derived from the original research (Kaarst-Brown, 1995) and an experimental instrument that Kaarst-Brown developed in 1998. This instrument was designed to efficiently use and test her theory in other settings outside the two insurance companies she initially studied.

The original pilot instrument developed by Kaarst-Brown was designed to be used in an embedded case study design within a university and made possible inquiry at the individual, departmental, and organizational level (M. L. Kaarst-Brown, personal communication, June 6, 2012). The instrument had 21 survey-type multiple choice questions. Questions were listed for each of the five assumption categories—control, centrality, ICT skills value, justification, and beneficiaries. For purposes of this thesis, however, the quantitative data elicited at multiple levels of an organizational setting were of less priority than the deeper, qualitative interview questions. Therefore, additional survey questions that addressed organizational levels were deleted while only the individual or personal level remained with open-ended questions used to probe perceived differences of opinions. The questionnaire was shortened to five questions—one from each assumption category—to avoid overwhelming the participant and see if the themes of individual versus family emerge on their own.

The first assumption category is Control Over ICT Direction. Table III-4 shows the five survey questions and potential responses were derived from the original instrument provided by Kaarst-Brown. In the left column is the original “individual level” question and responses selected from the pilot instrument designed by Kaarst-Brown in 1998 for a university setting. In the right column are the question and responses modified to fit the Choctaw research context.

Since this study deals particularly with the *Chabta* storytellers, the question that demonstrated the highest amount of *personal* investment is used. Participants have already told their story or listened to their family member tell their story. While that was fresh on their minds, I assessed how they felt about an ICT mediating *their* story for preservation and sharing with others.

Dimension #1: Control Over ICT Direction	
ORIGINAL QUESTION FROM (KAARST-BROWN, 1995, 2005)	MODIFIED QUESTION FOR THIS CONTEXT
1. Which of the following best describes <u>your underlying beliefs</u> about who should be setting the direction for Information Technology usage <u>for your unit</u> ?	1. Who do you think should be in charge of how computer technology is used to keep <u>your family's stories</u> and share them with the next generation?
ORIGINAL RESPONSES FROM (KAARST-BROWN, 1995, 2005)	MODIFIED RESPONSES FOR THIS CONTEXT
<ul style="list-style-type: none"> • Senior UR management (President, Provost...) • Information Technology specialist • Unit Managers (Deans, Directors or Dept. Chairs) in the various schools or offices • Technology direction should be jointly set by the technical specialists and the various units • IT should not have to be controlled because it is not a primary focus of our business 	<ul style="list-style-type: none"> • Tribal leaders (Chief, Assistant Chief, Tribal Council, and other leaders) • Technology/cultural specialists—people who know a lot about technology and study our culture • You and your family should decide when and how to use technology to preserve or share your cultural heritage • Choctaw families like you working with the technology/cultural specialists • We should not be using technology to preserve our stories or other parts of Choctaw culture

Table III-4. Adaptation of the Control dimension interview question to fit the context

If the cultural object or artifact is arbitrary or “someone else’s,” it is possible they might have less of a vested interest in who controls the ICT that mediate it. Addressing something that affects them personally grounds the situation in *their* reality. Also, notice how the particular questions were modified for the context. The language was simplified as words that did not translate easily into Choctaw were excluded, such as “digital.” All organizational jargon was removed or translated. “Setting the direction for Information Technology usage” was replaced with “be in charge” and “how computer technology is used” to make the questions more applicable to the setting. Other translations were made as shown in Table III-5. I was able to provide familiar examples to participants when they misunderstood a term.

ORIGINAL TERMINOLOGY (KAARST-BROWN, 1995, 2005)	TRANSLATION FOR THIS CONTEXT
• Senior management	• Tribal leaders
• Business unit managers	• Family elders
• Business units	• Families
• IT staff	• Technology/cultural specialists

Table III-5. Lexicon map of survey question translation

Dimension #2: Importance of ICT	
ORIGINAL QUESTION FROM (KAARST-BROWN, 1995, 2005)	MODIFIED QUESTION FOR THIS CONTEXT
2. Which of the following best describes <u>your underlying beliefs</u> about how important (central) Information Technology (IT) is to <u>your unit's strategy</u> ?	2. How important to <u>you</u> is it that we use computer technologies to keep <u>your family's stories</u> and share them with the next generation?
ORIGINAL RESPONSES FROM (KAARST-BROWN, 1995, 2005)	MODIFIED RESPONSES FOR THIS CONTEXT
• Long term survival and success is dependent upon IT	• The preservation of our culture is completely dependent upon computer technologies
• Very important to some strategic business problems	• Very important to <i>certain</i> parts of Choctaw culture, but not all
• Very important at the operational level to achieve tactical goals	• Very important that we—the families—have some way of preserving Choctaw culture
• Significance depends on who is sponsoring the IT project rather than the nature of the project	• It's more important <i>who</i> is involved rather than whether or not technology is involved
• IT is <i>not significant</i> at all	• Technology is <i>not significant</i> at all to preserving our culture

Table III-6. Adaptation of the Centrality dimension interview question to fit the context

Dimension #3: ICT Skills Value	
ORIGINAL QUESTION FROM (KAARST-BROWN, 1995, 2005)	MODIFIED QUESTION FOR THIS CONTEXT
3. Which of the following best describes <u>your underlying beliefs</u> about the value of Information Technology skills and knowledge <u>for your business unit</u> ?	3. If computers and technology are used to preserve Choctaw culture, how valuable to <u>you</u> is it that <u>you and your family</u> have computer and technology skills and know how to use them?
ORIGINAL RESPONSES FROM (KAARST-BROWN, 1995, 2005)	MODIFIED RESPONSES FOR THIS CONTEXT
• IT skills and knowledge should be highly valued and rewarded in my unit	• Having computer and technology skills is very valuable and important
• IT skills and knowledge should be required and expected, but not specially rewarded	• We should all know how to use computers and technology; it's simply expected in this day and age
• IT skills and knowledge are valuable only when partnered with holders of business skills/knowledge	• Computer and technology skills are valuable only with people who do not know Choctaw culture very well
• IT skills are not as important as our core business skills, but may be useful if directed by management	• Computer and technology skills are not so important to our culture, but may be useful if tribal leaders say so
• IT skills are not valuable and are even threatening to core business skills	• Computers and technology skills are not valuable and are even threatening to our culture

Table III-7. Adaptation of the Skills Value dimension interview question to fit the context

Next, the second assumption category in Table III-6 is the Importance of ICT in cultural preservation and sharing. In this question in particular, the activity of cultural preservation becomes an important theme in establishing the potential role ICT plays. This activity replaced the “long term survival” and “strategic business problems” from the original instrument.

Third, the question about the participant’s perceived ICT Skills Value, or the value they place on having ICT skills, is considered as the next assumption category (Table III-7). The question was modified to cause the participant to reflect on their own knowledge of how to use ICT, and the implications of a lack in confidence or knowledge to use an ICT had on their ability to participate in cultural sharing if ICT were used.

The Justification of ICT Investment was the next assumption category that was modified to fit the research context (Table III-8). It was asked how important is it to them that they own or are able to purchase the ICT needed to participate. Also, is there justification enough to invest some money to acquire the appropriate technology in order to participate in cultural sharing?

Dimension #4: Justification of ICT Investment	
ORIGINAL QUESTION FROM (KAARST-BROWN, 1995, 2005)	MODIFIED QUESTION FOR THIS CONTEXT
4. Which of these best describes <u>your</u> underlying beliefs about what should justify further investment in Information Technology (IT) <u>for your unit</u> ?	4. For families such as yours, what do you feel is a good reason or what would justify buying new computers or other technology <u>for you and your family</u> ?
ORIGINAL RESPONSES FROM (KAARST-BROWN, 1995, 2005)	MODIFIED RESPONSES FOR THIS CONTEXT
<ul style="list-style-type: none"> • We should be willing to invest in new IT to experiment so that we can develop new opportunities or new ways of providing services • Justification for new IT investment should depend on the problem or opportunity presented • New investment in IT should be justified when IT can improve unit productivity or personal productivity • New investment in IT should be justified when IT can help reduce staff or operating costs • New investment in IT is justified only when we have no choice due to competitive or survival pressures 	<ul style="list-style-type: none"> • We should buy new computers and other technology to play around with—we might never know what use it can be unless we try it out • It depends on what the new computer or other technology is needed for • When the new computer or other technology can make life easier, it would make sense • When the new computer or other technology can help us save money in the long run • If and only when it's absolutely necessary

Table III-8. Adaptation of the Justification dimension interview question to fit the context

Dimension #5: Beneficiaries of ICT	
ORIGINAL QUESTION FROM (KAARST-BROWN, 1995, 2005)	MODIFIED QUESTION FOR THIS CONTEXT
5. Which of the following best describes <u>your</u> underlying beliefs about who tends to benefit (or lose) with adoption of new IT <u>by your unit</u> ?	5. Who do <u>you</u> think will benefit and who will lose if we use computer technology to keep <u>your and your family's</u> stories and share them with the next generation?
ORIGINAL RESPONSES FROM (KAARST-BROWN, 1995, 2005)	MODIFIED RESPONSES FOR THIS CONTEXT
<ul style="list-style-type: none"> • Everyone wins • The university and students/customers win, but there may be selective losses • The individual unit that adopts a new technology benefits, with no real losses elsewhere at the university • The university and students/customers generally win, but the technical people responsible for implementing and maintaining the technology may suffer • Either no one wins or the people who adopt new IT lose more than they gain 	<ul style="list-style-type: none"> • Everyone wins • The Tribe and the next generation will benefit, but our elders and storytellers may lose a bit • The families that use it will benefit for sure, and no one will really lose • Generally we all will win, but I feel sorry for the computer people who have to do all the work • No one wins, or we will lose more than we hope to gain

Table III-9. Adaptation of the Beneficiaries dimension interview question to fit the context

Lastly, a question was modified from the original instrument pertaining to whom the participant perceives wins or loses when ICT are implemented (Table III-9). This question was modified to measure the “grandmother’s lap” phenomenon *i.e.*, what happens when we take the telling of stories from the matriarch and place them on an ICT to be shared? The intent was to encourage the participant to reflect about the benefits and losses that will be experienced by stakeholders and others in their cultural knowledge.

These five questions constituted the beginning of the interview questionnaire. Procedurally, the participants and I read the questions and possible responses together. I noted any apparent confusion, lack of understanding, need for clarification, uncertainty in responses, or “none of the above” responses. Once these questions were answered, the interview progressed into the open-ended and deeper qualitative questioning designed for elaboration and cross-checking:

6. a) How do you feel about your and your family’s stories being available on the Internet for everyone to hear? b) What about other aspects of Choctaw culture—like videos of dances, stickball games, singing, pottery or basket making, and other traditions?

7. If you had the right technology and knew how to use it, would you use it to listen to other stories and share your stories with others?
8. Are there particular people you feel should be in charge of cultural heritage preservation where technologies are involved? Do you have any concerns about this?
9. Do you think it is important that Tribal leaders know how you feel about this?
10. Do you think that Tribal leaders should be investing money in new computers or other technology for Choctaw cultural preservation? Why or why not?
11. a) When you think about cultural heritage preservation, do you have concerns about how technologies might be used to preserve or share this? b) In terms of benefits or risks, do you have any concerns about what current Choctaw or future generations might lose or gain through use of technologies?
12. Tell me about your first experience with technology.
13. Do you think that other Tribal members would feel the same way as you? Why or why not?

Is there anything else we need to know about Choctaw culture and what the Tribe could be doing to preserve it using technology?

Questions six through eight, ten, and eleven tied back to the five cultural assumption categories addressed by the survey questions above. During analysis, these questions helped compare and converge the quantitative and qualitative data. Question twelve was added after the tenth interview. It was discovered that participants were not delving enough into their history with ICT—an important consideration with IT Culture theory.

The remaining questions nine and thirteen were open-ended. They were designed to encourage the participant to reflect on their opinions of family and other Tribal members responses. These questions represent the questions that were discarded from the original 21-question Kaarst-Brown instrument created in 1998. The thirteenth question was designed to elicit themes or

considerations possibly missed by the model or other questions (Kvale & Brinkman, 2009; Kaarst-Brown, 1995). The interviews concluded with a series of short-answer demographic questions regarding age, Choctaw blood quantum, and technology use. These questions, along with the complete questionnaire, are shown in Appendix A.

In summary, the mixed methods nested concurrent strategy is detailed above along with a description of the structured interviews using a mixed-use questionnaire, *i.e.*, 5 closed-ended survey questions, 10 open-ended interview questions, and 10 closed-ended demographic and ICT use questions. The focus of this discussion moves to the people whom this instrument was given and how they were selected for participation.

Sampling Strategy

Moving forward, we look to the specific sampling strategy that was used, how participants were recruited, and how the study was bounded—*i.e.*, who was included, who was not, and why. Figure III-4 provides an overview of the overall sampling strategy described in this section.

Sampling Frame

The first step to selecting a good sample was deciding upon the sampling frame, *i.e.*, a list of the units of analyses from which the sample was taken and to which the results were generalized. Some researchers argue against an application of theory at a “macro” cultural level and suggest a micro or individualistic approach (Straub, Loch, Evaristo, Karahanna, & Srite, 2002). Generalizing broad-based assumptions about an *entire* Native American or other ethno-cultural group would have been problematic (Alexander, Brewer, & Livingston, 2005), misinforming (Ford et al., 2003; Straub et al., 2002), and reinforcing of harmful stereotypes (Iseke-Barnes & Danard, 2007).

There is no way to query or probe into the collective unconscious of an entire culture. We argue, therefore, that the individual unit of analysis is both appropriate and meaningful. Once the individual level data is aggregated, it will also be possible to assert that certain cultural characteristics do or do not belong to certain cultures. (Straub et al., 2002, p. 19)

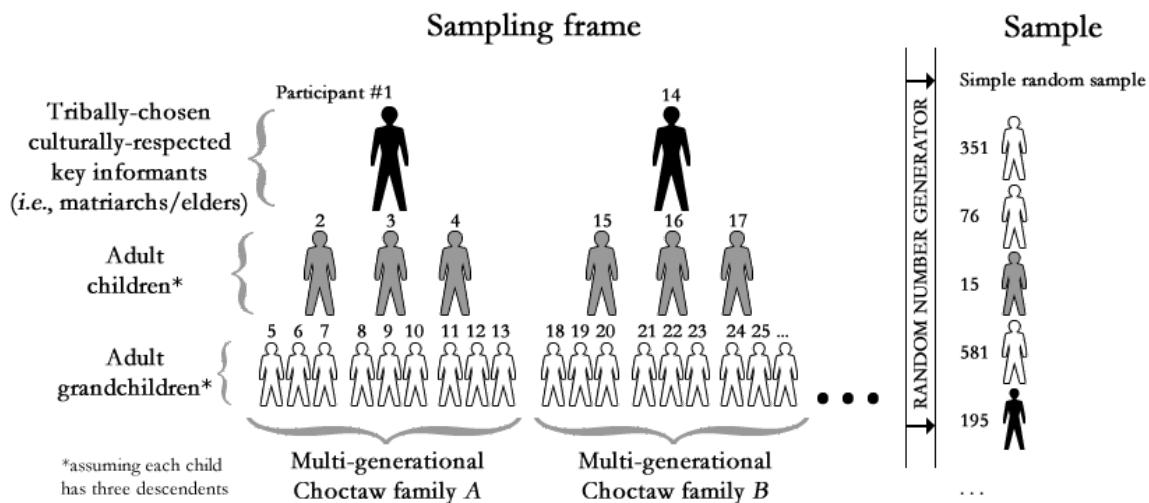


Figure III-4. An illustration of the sampling strategy used in this study

In Kaarst-Brown's (1995) research with two insurance companies, respondents from over two dozen business units or departments were interviewed, resulting in identification of the five different assumptions dimensions that clustered into five distinct, archetypal, IT cultural patterns. In this study, her theory was used to understand the assumptions about ICT *found in individual Choctaws*. The purpose of this study is *not* to say, "All Choctaws fall into X archetypal pattern," but to understand which patterns exist, where the underlying attitudes stem from, and how their presence will affect the role of an ICT for cultural heritage sharing. Thus, the methodological decision was made to gather deeper data from individual Choctaws rather than attempt to survey a broad sampling across the entire Tribe.

In the Tribal community, there exists the presence of many well-known, multigenerational Choctaw families who are recognized by the community for having specific cultural knowledge. This respected knowledge encompasses different types of cultural knowledge. For the purposes of this study, the cultural knowledge fell into one or more of the following categories:

- A person who raised speaking Choctaw as their first language (as opposed to learning it later in life through an educational language program);

- A person who had firsthand experience with a part of the larger Choctaw history (*e.g.*, a Choctaw who attended a boarding school and directly suffered the assimilation experienced by the Tribe as a whole);
- A person with specific artisanal knowledge passed down from ancestors of how to create or use an artifact considered to traditional or unique to the Choctaw (*e.g.*, a Choctaw who is skilled in beadwork or pottery); and
- A person who is the descendant of a notable Choctaw (*e.g.*, a Chief) or a member of a prominent Choctaw family (*i.e.*, one that is often featured or written about in accounts of Choctaw history).

Choctaw who meet one or more of the above criteria are referred to in this study as *culturally respected* Choctaw. This terminology is consistent with what Bernard refers to as “culturally specialized informants” (Bernard, 2011, p. 153).

In conversations with and observations of the Choctaw people over the past seven years, one theme is consistent—*family*. A uniting factor of Choctaw people is their common lineage and their families—where the culture lives and thrives and how it is most often expressed. It is through family that many socio-cultural interactions in Choctaw life take place. Thus, multigenerational families of the Choctaw Nation were likened to the “business units” present in the Kaarst-Brown (1995) study as units of analysis. Furthermore, a family that contains at least one living culturally respected Choctaw is referred to in this study as a culturally respected family. These culturally respected families made up the participant pool from which the sample was taken.

For example, during the *Chahta Sia* pilot study (Kaarst-Brown & Dolezal, 2012), there were three instances of Choctaws discussing culture as it surrounded their family life. One participant talked about his regular family get togethers—usually at holidays. The entire event centered on his matriarch grandmother—everybody was checking on her and making sure her needs are met.

Traditional Choctaw families typically have a matriarch as described by the participants—an elder woman who heads the multigenerational family unit (Haag & Willis, 2001, p. 267). She typically is considered to possess the greatest knowledge of the commonalities that bind the family together through kinship (Weibel-Orlando, 1999, p. 225). These older individuals are often the stewards and gatekeepers of this information.

This participant also talked about the games they would play—how they would play traditional stickball and almost everyone would be involved, from the younger women to older folks; the food they ate—how the men did all the cooking, but the women prepared the food; and the importance of their elders—how at the last gathering the grandmother led the women in some traditional beadwork. Another participant also told us of her experiences describing how her family gathered at several cabins in a remote area, and under a large tree they would sit and listen as the grandmothers would tell stories in Choctaw. Yet another stated that his idea of Choctaw culture was based in the past. His family still owned the original allotment they received after the Trail of Tears in 1837, and the land was also his family's burial grounds—all of his ancestors since the Trail were buried there. He said although no one lived there at the time, there were 12 grandsons in the family, and each one was assigned a month of the year where they went, mowed the grass, weeded the cemetery, and kept the place up. He said, it was rare that his family gathered there, because the matriarch has passed away. These three accounts were excellent indications of the strong evidence that family is common and central to Choctaw culture.

Selecting Informants

To select participants for this study, a two-level nested sampling strategy was utilized:

1. A purposeful non-probability sample of multigenerational families that were selected from as culturally specialized key informants (Bernard, 2011); and
2. A probability-based simple random sample of individuals within those families.

First, it is important to recognize that not all Choctaw families are equally steeped in traditional Choctaw culture. The Choctaw Nation puts no restriction on blood quantum, *e.g.*, even fractions less than 1/64th and 1/128th Choctaw by blood are considered for membership. Also, many Choctaws are in diaspora, *i.e.*, 82% of all Choctaw members live outside the tribal homeland in southeast Oklahoma. Many Choctaws outside of Oklahoma were rarely taught the language or grew up connected to the traditional culture back in Oklahoma. Historic marginalization, forced assimilation, and the mixing of ancestry over the generations are also important considerations (Weibel-Orlando, 1999). With all this in mind, it was imperative to select Choctaw families whom the ICT would have impacted the most—the gatekeepers and intimate knowledge-holders of Choctaw cultural information as key informants (Tremblay, 1957) or “wisdomkeepers” (Arden, Wall, & Autumn, 1990).

Luckily, the Tribe was already identifying key informants—people with knowledge of traditional Choctaw culture and whose personal experience was important to the Tribe—through the *Chabta* storytelling project. “It is only reasonable that Indigenous self-determination or sovereignty includes the right to determine who gathers what information *from whom* and for what purpose (Nielsen & Gould, 2007, p. 423).” By piggybacking the selection of participants on the *Chabta* storytelling effort, this allowed the Tribe to determine *who* was important for me to interview. The individuals they identified had something to say that was important to the Tribe. In Native American tribes, respect was “the primary motivator” (Dumont, 1996, p. 23), and as evidenced by the literature, these “informal community leaders...are respected by all and looked to for guidance” (Nielsen & Gould, 2007, p. 424). This selection technique is not unlike that of Kaarst-Brown (1995) who purposively selected key executives and managers to construct the theory used in this study.

While allowing the Tribe to identify the key informants for this study is valuable, I also recognize that discovering the underlying assumptions about ICT relies on a wider demographic

than just the informal community leadership. Thus, the sampling strategy also encompasses the entire sampling frame—the families and kinfolk of the informal community leaders and *Chabta* storytellers. Just as Kaarst-Brown (1995) purposively selected key executive leaders in her study's two insurance companies, she also relied on informants deeper in the organizational charts within individual business units or departments. In fact, of the 87 first-interviews she conducted, only 14% were with executive leaders. The probability sampling strategy of this study put all the names of storytellers and their family members that were 18 and older¹³ in a pool and randomly selected them.

Determining an Adequate Sample Size

By the end of 2012, the *Chabta* Foundation planned to record the stories of 30 or more individuals. According to the 2010 U.S. Census, the average Choctaw family has three children. If the storyteller has three adult children and nine adult grandchildren, there are an estimated 13 potential participants per unit of analysis, *i.e.*, culturally-respected family. Thus, the potential research pool of participants was estimated at around 400 people (counting each storyteller, her three children, and nine adult grandchildren.) With 28,420¹⁴ adult Choctaws who lived in the Tribal area in southeast Oklahoma, this pool represented almost 2% of the population. More importantly, however, the individuals were members of culturally-respected families with informal community leaders as their elders or matriarchs, and they had a *personal, vested interest* in the ICT that would mediate their matriarch or elder's sacred story.

Determining how many of these 400 individuals to interview was not a straightforward calculation. Evidence has suggested that fewer informants are needed than once believed to understand a well-defined cultural context (Bernard, 2011). Morgan *et. al.* (2002) found that little new data were found after their 20th interview. Guest *et. al.* (2006) found that 70% of the themes that

¹³ Selecting only participants 18 and older was an IRB requirement for approval of the application to conduct research. Also, there is no purposive or compelling reason to interview children or adolescents in this study.

¹⁴ This count was queried from Choctaw membership roles, as of July 13, 2012.

emerged as they coded their interview data were discovered in the first six interviews, and 96% emerged during the first half of 60 total interviews. Only five new themes emerged from the latter 30 interviews conducted in a completely different country than the first 30. Morse (1994) recommended a minimum of six interviews for phenomenological studies and 30-50 for ethnographies. Weller and Romney (1988) used an analysis technique called consensus analysis to measure the level of cultural competence and showed that only 10-13 knowledgeable informants are truly needed. Note, however, that these studies strictly employed qualitative methods. Using mixed methods makes arriving at a predetermined number of interviews beforehand difficult.

As I conducted interviews, I found that by the 20th random participant from the sampling frame, repetitive or similar answers were emerging and dominated the interviews, *i.e.*, no unique data was gained. Therefore, I stopped interviews after the 26th participant. This decision is discussed later in the Analysis of the Data section (see page 109.)

Recruitment

After potential participants were chosen, I contacted and introduced myself to them. In some cases, I conducted the interview over the telephone. I read them the informed consent script. Fourteen individuals declined, and I withdrew them from consideration for the study. For those who agreed, I conducted the interview. I attached the introductory and informed consent script used for recruitment in the appendices.

In summary, the sampling strategy used for this study was a combination of non-probability (culturally-specialized key informants) and probability (simple random sample) sampling of multi-generational, culturally-respected Choctaw families who participated in the *Chabta* storytelling project resulting in 26 total interviews. With an understanding of sampling in this study, we move the focus to the data collection procedures.

Data Collection Procedures

The process of the data collection procedure is diagrammed in Figure III-5 and includes the following considerations (Bailey, 2006; Bernard, 2011):

- The interview setting and participants' first impressions of the researcher;
- Ethical issues present during the process;
- The effects that status characteristics had on participants;
- Differences in procedures of in-person versus over-the-telephone interviews;
- Probing techniques used;
- Procedures for collecting data and taking field notes;
- Terminating the interview; and
- Pre-testing the interview procedure.

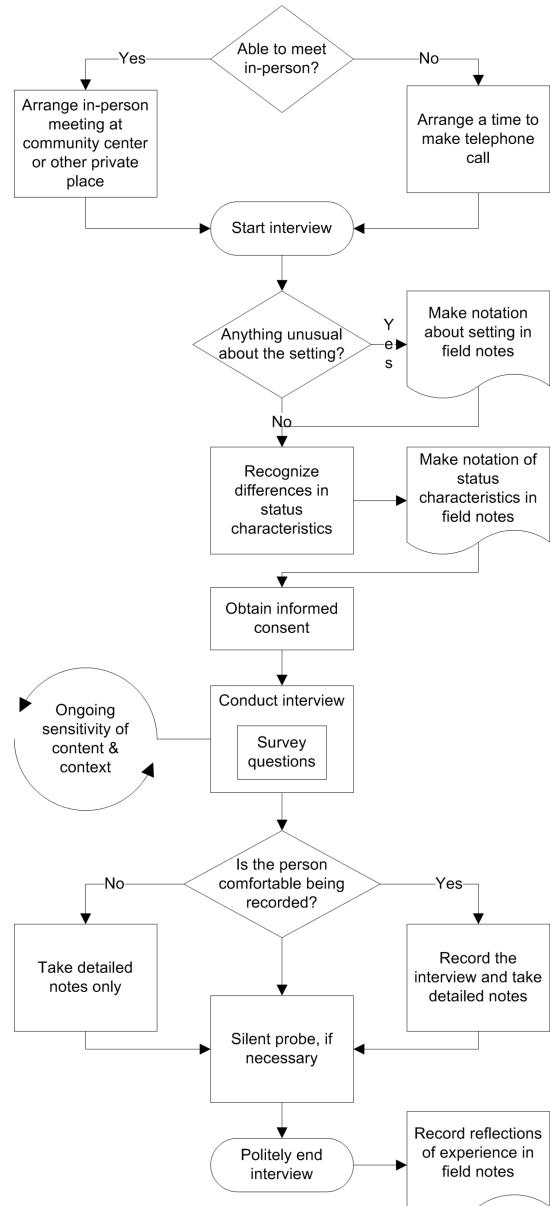


Figure III-5. Diagram of methods procedure to be used in this study

Setting for the Interviews

Approaching the interview session did not begin with formulating good questions, but with the care taken by the researcher to nurture the relationship between the interviewer and interviewee (Bailey, 2006). The choices made for the location of the interviews made the difference between my participants feeling comfortable enough to give open, honest answers and feeling uncomfortable, intimidated, or trepidatious and saying just what they think I wanted to hear. For in-person

interviews, the Tribe has community centers in nearly every town within the Tribal area. As long as there were no events, luncheons, or meetings being held at the same time, they were relatively quiet, comfortable, safe, private, familiar to the participant, and distraction free. In a few instances, I was open to suggestions of the participant if they had another place in mind they would rather sit for the interview. All in all, the interview settings were excellent.

For telephone interviews, I had no control over their location. I made sure they were comfortable, had adequate time to complete the interview without feeling rushed, and were in a relatively distraction-free and private environment (*e.g.*, not call them while they were at work or caring for children.) In either case, care was taken to protect the identity of the participant, so that no social harm would befall them by carefully selecting the location for the interviews.

Ethical Consideration During the Process

There are some additional ethical considerations to make in regard to the methodological procedures and conduct of the interviews. First, I developed a rapport with my participants by being polite and respectful (Bailey, 2006). I accomplished this by making a conscious effort to:

- Recognize their position within the community and family, particularly elders and matriarchs;
- Respect their space for quiet contemplation, as suggested by an informant in the *Chabta Sia* project (Kaarst-Brown & Dolezal, 2012);
- Be sensitive to their feelings and an attentive listener; and
- Conduct myself in a kind, benevolent, and unintimidating way.

Informed consent was also an obvious ethical consideration made during the interview process. The informed consent script I read to participants is attached in *Appendix 2*. If the interview was being conducted over the telephone, I extended an opportunity to mail a copy of the informed consent document to the participant, but none were so inclined. I also provided contact names and

telephone numbers of both Institutional Review Boards (Syracuse University and Choctaw Nation) as well as my Syracuse advisor, in case the participant had any concerns about their involvement or the manner in which I conducted the research. None brought any concerns forward.

Third, sensitivity of content and context was employed as an ethical consideration. Sensitive, personal, or confidential information was always at the forefront. It is my responsibility as the researcher to prepare for unexpected situations and, in some cases, know when to “back off” (Bailey, 2006, p. 107). I achieved this particularly during recorded interviews. The majority of participants who initially agreed to be audio recorded seemed to hesitate at some point. Often, I read in their facial expression that they wanted to tell me something important but were afraid. I stopped, asked them if they wanted me to turn the recorder off. They said they did, and once it was stopped, they shared what they had to say. I gleaned a good amount of valuable data this way while still protecting my participants.

Status Characteristic Differences Between the Researcher and Participants

Researchers often face the challenge of interviewing someone who is different in terms of race, gender, language, educational attainment, and socio-economic status. These status characteristics are an important consideration regardless of how objectively, ethically, or politely the research is conducted (Bailey, 2006). The reality of status characteristics had already been ingrained in me. Working for a Native American tribe to which I am not a member and not being Native American in descent, the implications and differences in race and ethnicity are plain and obvious to both me as the researcher and to my research participants. However, a broader view reveals a complete culture and value system difference between researcher and participants. There are significant differences between us, even though I was born and raised in Oklahoma just like most of them. Being brought up in a typical white and middle-class American fashion, I experienced a lifestyle and worldview different from the Choctaw. They value different things. Their idea of

personal success and achievement is very different than mine. They have big, tight-knit families while mine is small and dispersed. They interact different socially than I do. They often consider a trip to a cosmopolitan city a rare experience while to me it is ordinary. Some of them have not even finished high school while I am working on my doctorate. One of them had never used a computer while I have used one almost daily for 30 years.

The consideration of these differences was designed to help me understand whether:

- Choctaws seek and use information differently and for different reasons than I do;
- Choctaws are motivated to use ICT for different reasons than I do; and
- Choctaws accept or reject technology based on factors I have not yet considered.

In fact, the premise of the study—to understand that underlying cultural assumptions will affect the role of an ICT for heritage preservation and sharing—considers the fact that some of these assumptions are embedded in status characteristics.

The specific techniques for dealing with status characteristics varied depending on the participant. First, I recognized them. Being agile and adaptable as a researcher to account for status characteristics and their effects—whether specific to one participant or pervasive over the entire sample—was key. When a potential challenging status characteristic difference was encountered, I adopted a “participant-centered” approach, *i.e.*, open, understanding, attentive, and accepting (Rogers, 1961). Whenever applicable, I documented any noteworthy status characteristics that came to bear or seemed to affect the interview.

Telephone Versus In Person

One-third of the interviews were conducted over the telephone rather than in person. Again, the Choctaw Nation Tribal area is large, covering over 12,000 square miles. From one corner of the Tribal area to an opposite corner is a four- to five-hour drive one-way. I even had a few participants who had moved outside the tribal area—one as far away as Seattle, Washington. Also, some

participants had a schedule or obligation through life or work that prevented them from getting the free time to meet at a designated community center or other interview place. The advantage of the telephone interview was the ability to interview a participant when time or distance would prevent it otherwise. The disadvantages, however, included the inability to control the setting and distractions in a few cases; and the fact that the survey-type questions were a little long, and they were not be able to read along with me and contemplate their answer while simultaneously viewing all choices. In some cases, I had to repeat the questions or multiple-choice responses.

Silent Probing

There are several techniques to stimulate participants to give more information, including probing, leading, and baiting (Bernard, 2011). While these techniques were used sparingly and appropriately, there was one probe in particular known to be effective with Native American populations—the silent probe (Streib, 1952). Also encouraged by an informant in the *Chanta Sia* project (Kaarst-Brown & Dolezal, 2012), silent probes gave my participants space to contemplate their answer. If I were to try and fill that void with probes, I would have infringed on their concentration and exacerbated them with a rapid conversational style unnatural to them. In most interviews, I used the silent probe. It proved to be highly effective in eliciting an additional response.

Recording Data in the Field Notes

Data for this study were also recorded in field notes. The main types of field notes that were captured during the conduct of this study were (Lofland & Lofland, 1995):

- Interview recordings and their transcripts,
- Notes made during interviews,
- A detailed log of all research activity,
- On-the-fly ideas and inferences, and
- Reflexive thoughts.

During the interviews, I took extensive notes. In most cases, I requested to record the audio of the interview—doing so only when the participant agreed and appeared comfortable with it. I continuously took detailed notes regardless, and used the audio recording as a backup and to transcribe the audio for analysis.

Moreover, I maintained a detailed research log throughout the entire process. I recorded details about all notable occurrences and observations to do with the research. I carried this research log with me for when impromptu observations occurred. As data were collected, I had some mental “ah-ha’s” about particular observations that connected to other observations already made. The analysis of the data was not a solitary activity confined to the end of the study.

Preliminary inferences were made on the fly are part of the overall analytic activity (Lofland & Lofland, 1995). Finally, the field notes consisted of reflexive thoughts I made along the way. Regardless of the objectivity required in rigorous research, I was still an actor in the research play, and thus my presence had effects on the setting and outcomes (Bailey, 2006). The field notes constituted a considerable amount of data that was used for analysis.

Terminating the Interview

For most participants, bringing the interview to a close after all the questions had been asked was a simple matter. A few times the participant was particularly talkative and rambled on about unrelated subjects. I did my best to be polite and foster the social relationship—as I desired to leave a positive impression of research with my participants as I exited the field (Bailey, 2006).

Pretest

Prior to the thesis proposal defense, I had the opportunity to pre-test the interview questionnaire and procedures described in this chapter with five individuals. Although formal pilot tests of qualitative studies are rare (Kaarst-Brown & Dolezal, 2012), the pretest of these methods with a handful of participants proved to be successful. The participants responded to the survey

questions well. Also, they gave very deep and lengthy responses to the interview questions. This was atypical to the usual conversation style of Choctaws who tend to be brief and thoughtful and not verbose. Their responses gave a preview of the richness of data I would gather through the data collection process. This was encouraging.

In summary, the entire data collection process and important considerations made have been discussed. Figure III-5 (back on page 97) illustrates this process and the relationship between the factors discussed, including decisions about the setting, ethics, status characteristics, in person versus telephone, probing, recording, and exiting.

Next, the methodological decisions about data analysis are discussed, and how it addressed the research question using the theoretical underpinning and led to the results and insights presented in the remaining chapters of this thesis.

Analysis of the Data

The analysis of the data generated during this mixed-method study was conducted in three separate steps (Figure III-6), as part of a conventional nested concurrent strategy (Creswell, 2003). First, a qualitative deductive coding pass was made (QUAL). Second, the responses to the survey questions made by participants were tabulated and analyzed alongside the participant demographics (QUAN). Third, the qualitative and quantitative data were converged to assess the nature and pervasiveness of the IT Culture patterns of assumptions about technology found in the Choctaw participants (QUAL+QUAN). The analysis stage of this project is illustrated in Figure III-7 below:

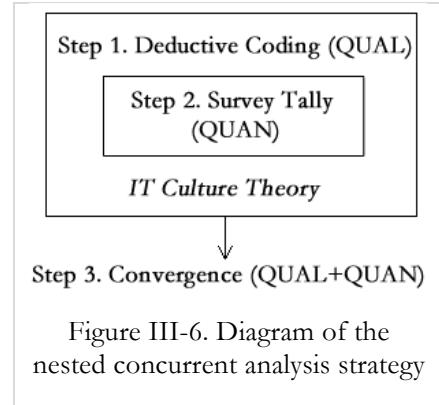


Figure III-6. Diagram of the nested concurrent analysis strategy

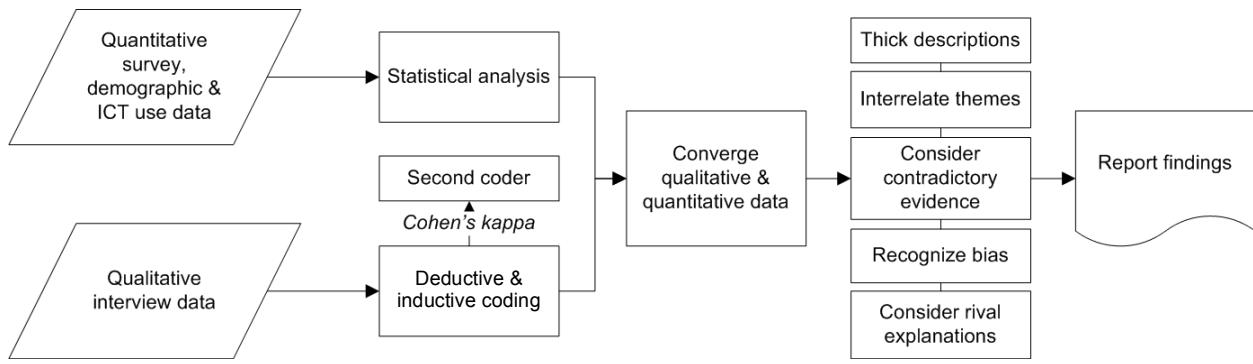


Figure III-7. Diagram of the analysis process used in this study

Coding

Because a theoretical framework was preselected, the deductive coding process used a set of predetermined codes. The deductive codes were derived from the IT Culture theory (Kaarst-Brown & Robey, 1999; Kaarst-Brown, 1995, 2005) and are listed in *Appendix 3*. The frequency of each code was significant as the data was analyzed in a two-step process of “initial coding” followed by “focused coding” (Bailey, 2006; Miles & Huberman, 1994). During initial coding, I read and reread the data and applied the codes that fit. During the subsequent focused coding process, I grouped initial codes and organized more granular codes into the categories that subsumed them. Also, an inductive coding pass was conducted after the focused deductive coding to identify the new elements or themes that emerged outside the theoretical framework.

Qualitative Data Analysis (QUAL)

During the qualitative data analysis phase (QUAL), the quotations, observations, and notes were ordered by their common themes and stories. A deductive coding pass was preformed to identify data that fit into the IT Culture theory using a codebook derived from the theory (see page 201.) After the researcher coded the content, a second coder was chosen to test for intercoder reliability. The reliability coefficient of Cohen’s *kappa* is calculated by measuring the agreement between two raters who each classified a set number of items into the mutually exclusive categories of the codebook (Bernard, 2011). The second coder was a Choctaw fourth-year doctoral student at

another university trained to understand the IT Culture theory and how to apply the codes. The second coder took five random transcripts and coded 134 individual items. The same transcripts were compared to the original coding performed by the researcher. When a discrepancy was found, the researcher and the second coder discussed the difference and either reconciled it or agreed to disagree. Using this procedure, reliability of 98% agreement between the coders was achieved. (Only a discrepancy in 3 individual codes could not be reconciled between coders.) This measure of reliability is favorable in light of the granularity of the coding schema.

The Choctaw voice is of utmost priority in this study as it should be in any respectful research with Native American people (Nielsen & Gould, 2007). Thus, the decision was made to present the results of this study—much the same way that Kaarst-Brown (1995) did—in the form of direct quotations made by the participants, alongside the observations and notes made by the researcher. To hear directly from their mouths what they believe about technology is important before conclusions are formed.

Quantitative Data Analysis (QUAN)

In review, the data collection instrument was designed to assess the presence of underlying assumptions drawn from the ICT Culture theory (Kaarst-Brown & Robey, 1999; Kaarst-Brown, 1995, 2005). The survey questions were derived from Kaarst-Brown (1995) and an experimental instrument designed that she developed in 1998 to test her theory in a higher education setting with inquiry at the individual, departmental, and organizational level (M. L. Kaarst-Brown, personal communication, June 6, 2012).

The questionnaire was shortened to five questions—one for each of the assumption categories: Control, Centrality, Skills Value, Investment, and Beneficiaries. The questions were multiple choice format and had five possible responses each based on the sets of related assumptions identified in the original theory. Each of these responses indicated one of the five

archetypal patterns of the IT Culture theory: Controlled, Revered, Demystified, Integrated, and Fearful. After the data collection, the responses to the survey questions were tallied and converged with the qualitative data analysis. (See page 195 for a list of the questions and their possible responses.)

Convergence of the Qualitative and Quantitative Data (QUAL+QUAN)

Although the qualitative data has priority over the quantitative in the nested concurrent mixed methods strategy, an important step was to compare and converge the coded qualitative open-ended data and the quantitative survey responses on the questionnaire. The possibilities for quantitative and qualitative data convergence in mixed methods studies are numerous, and there are few prescribed or developed procedures for their application (Creswell, 2003). The main impetus driving this decision was the need to address the research question without an extended ethnography. I followed a similar line of thought as Kaarst-Brown and Guzman (2008) who—in their paper titled, *Decisions, decisions: Ethnography or mixed-method approaches to study cultural issues in IS research*—determined that a mixed-method design offers some of the same advantages without the extensive time required to conduct a rich ethnography.

The key step in this analysis process is the convergence of the qualitative and quantitative. First, it had to be decided how well the two types of data correlated. The coded transcripts and field notes for each participant determined the dominant or most prevalent pattern for each IT Culture dimension—Control, Centrality, Skills Value, Investment, and Beneficiaries. This value is paired with the same participant's response to the corresponding survey question. For example, let's say a participant answered the interview question about who should control a cultural heritage ICT with the response, "Tribal leaders should be in control." This response clearly indicates the presence a Controlled pattern. This value would have been paired with their response to the survey question on the Control dimension. If their response to the survey question also indicates a Controlled pattern,

then the pair would have been marked as matched. If the participant chose a response that indicated a different pattern, then the pair would have been marked as not matching. The Pearson product-moment correlation coefficient (Pearson r) for each IT Culture dimension was used to calculate the frequency of matches to non-matches. The closer a correlation coefficient (r) gets to a value of 1.0, the more confident we can be that the quantitative and qualitative data correlate.

Cluster diagrams similar to those used by Kaarst-Brown (1995, pp. 521 & 526) map the convergence of the qualitative and quantitative data. Five circles represent each of the five IT Culture archetypal patterns: Controlled, Revered, Demystified, Integrated, and Fearful, respectively. The radii of the circles visually depict the magnitude of the pervasiveness of each archetypal pattern according to the total sample's response frequency to the quantitative survey questions. An example of this can be seen in Figure III-8.

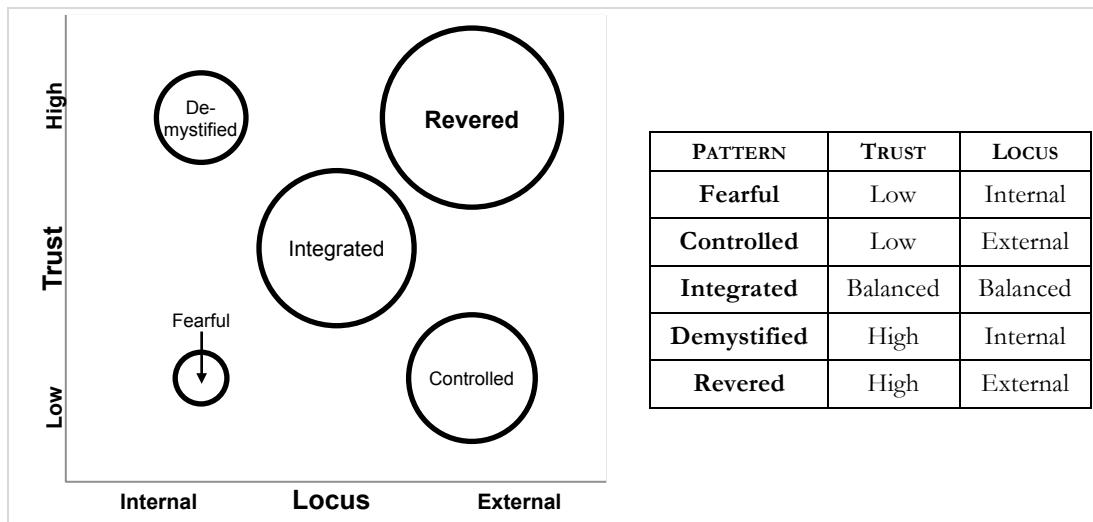


Figure III-8. Example of the cluster diagrams used to map convergence (QUAL+QUAN)

In the analysis of the data, it was determined that each cluster also could be positioned along two axes: trust and locus. The trust axis is a measure of how much the Choctaw participants trust or accept technology. This was measured by the number of positive and negative statements made about the idea of a cultural heritage ICT. Adjectives like “wonderful” or “exciting” were considered

positive affirmations of trust and acceptance while sentiments like “not sure” or “won’t work” cast doubt on the eventual trust and acceptance of a cultural ICT. Participants who held a Demystified and Revered pattern of beliefs made more positive statements about the cultural ICT in their interview responses; those of a Fearful or Controlled pattern made the most negative statements; while those of an Integrated pattern had a balance between the two. Thus, Choctaws who hold a Demystified or Revered pattern seem more trusting and accepting of the idea of an ICT used for cultural heritage while those holding a Fearful or Controlled pattern seem less so.

On the other axis of locus, Choctaws who are dominantly Demystified or Fearful have a more person- or family-centric (internal) view of the cultural ICT, while those of a Revered or Controlled persuasion view it with a more community or tribal-wide (external) locus. Statements that focused on “us” or “my family” were considered to have an internal locus, while words like “the Tribe” or “our Choctaw culture” in regards to a heritage ICT were more externally focused. Participants holding a Demystified or Fearful pattern made more internal statements; those holding a Revered or Controlled pattern made more externally-focused responses overall; and those who were Integrated had a balance between an internal and external locus considering a heritage ICT.

These axes are an important tool in the interpretation and conclusions drawn from this study. A cluster diagram was created for each of the IT Culture dimensions: Control, Centrality, Skills Value, Justification, and Beneficiaries. Figure III-8 above is a fictitious example of the cluster diagram used. If the following example had been a real scenario, the Revered pattern would have been most dominant, followed by Integrated, Controlled, Demystified, and Fearful. Also notice how the clusters are positioned along each axis according to their trust and locus orientation. As such, this diagram would suggest a high trust and external locus concerning the ICT.

Size and Demographics of the Sample

Around the 20th interview, data began to become saturated. Interview responses were less and less unique. During the last 3 interviews, analysis of the data did not reveal a single thread or example of a theme that was considered new or unique. In fact, 95% of unique coding instances were discovered in the first 18 interviews. The 26 interviews yielded an adequate volume of data to analyze. The sample proved to be diverse and well stratified (Table III-10).

	Elders	n=5	19%
BY GENERATION	2nd generation Choctaws	n=11	42%
	3rd & 4th generation Choctaws	n=10	39%
	Half-to-full Choctaw by blood	n=10	38%
BY BLOOD QUANTUM	One-quarter Choctaw by blood	n=10	38%
	Less than a quarter by blood	n=6	24%
BY GENDER	Female	n=18	69%
	Male	n=8	31%

Table III-10. A summary of overall participant demographics

People were eager to participate. Only 44 people had to be approached to get a yield of 26 interviews (59% participation rate). Most often, the people who did not participate simply could not because of time demands or scheduling. One possible explanation to this was the interest in the subject. Seventy-seven percent (77%) of the interviews were conducted in-person, as opposed to over the phone. Also, an average interview time of 35 minutes was very encouraging among the Native American participants. With only five survey questions, eight structured interview questions, and seven demographic questions, longer responses were given than what was expected.

Finally, rich data had emerged for each of the five IT Culture theoretical dimensions. The goal of the entire process was to collect enough data “to provide an analysis *uniquely adequate* for that particular phenomenon” (Psathas, 1995, p. 51, emphasis in original). Once it became clear that this objective had been achieved, the data collection stage was brought to a close.

At the end of the analysis stage, an inductive coding pass was made through the data to identify significant findings that possibly did not fit the IT Culture theory. This process did not reveal any findings of significance, which would not fit with the IT Culture theory.

Reliability, Validity, and Trustworthiness

Addressing the reliability, validity, and trustworthiness of this research project is of utmost concern. An assessment was derived from Miles and Huberman (1994, pp. 278–279) to address the reliability and validity of this study. The results of this assessment can be found at the end of Chapter IV. (See page 164.) To address the trustworthiness of the study, three cultural experts within the Tribe were asked to help with interpretation of the data: 1) an employee of the Cultural Heritage department (also a member of a prominent Choctaw family), 2) the Tribe's archeologist (also a Tribal member and holder of a PhD in anthropology), and 3) a Choctaw language teacher (a full-blood Native speaker). Their help led to the discovery of Choctaw-specific symbols to represent the essence of the original IT Culture theory. Also, seventeen Choctaw elders—all who are members of culturally-respected families—verified the validity of the symbols chosen.

Summary of the Research Design and Methods

To recap, the development of the research design and methods supported the entire study, but also specifically addressed research question three:

3. How well does a mixed-methods approach apply the IT Culture theory, as opposed to the original ethnographic design used by Kaarst-Brown (1995)?

This question ties the selected theory, IT Culture, and the methodological design to test whether a mixed-method approach is effective in lieu of a full ethnographic study, just as Kaarst-Brown and Guzman (2008) proposed. With a presentation of the methodology presented for this thesis project complete, we now move to the results of the research design when conducted in the field.

CHAPTER IV. ANALYSIS AND INTERPRETATION

“My ancestors... when I speak to you today, it’s not only for me; it’s from them, too.”
—*Quote from an interview participant*¹⁵

The history of the Choctaw Nation and its people with information and communication technology is varied and complex. Unlike the insurance companies that Kaarst-Brown (1995) studied in the construction of her IT Culture theory, the Choctaw people do not make up a business. The Choctaw are a collection of locally-based, loosely-coupled communities and outlying pockets of members scattered around the globe. However, similar to any organization, a network of Choctaw people underpins a social structure with the interplay between culture, power, roles, and social needs (Venkatesh, 2003). In this way, what was learned by Kaarst-Brown is applied in the context of a Native American tribe. The *Chabta* storytelling project and proposed ICT development represent the first effort made by the Tribe that directly affects its people where ICT is concerned. While the Tribe has indirectly affected its members with technology in the past in efforts to improve service delivery in their health, education, and outreach programs, never have they sought to preserve and share the culture with technology on such a scale.

¹⁵ Transcript 7, line 223

Upon review of the introduction and history of computer technology at Kaarst-Brown's (1995) insurance companies, it was assumed that the Tribal community, as an organization, may have had similar experiences, both positive and negative, as technology is introduced as a tool for cultural heritage preservation and sharing. Thus, the data collected during this study were viewed through the lens of the IT Culture theory. The intention was to predict the Tribal community's reaction and anticipate the best course of action for as positive an outcome as possible with minimal negative impacts on the Choctaw culture and their way of life.

Analysis of Choctaw IT Culture by Dimensions

Presented in this section are the results of this thesis study as it aligned with the IT Culture theory. Data fell into the specific categories of the IT Culture theory—*viz.*, Control, Centrality, Skills Value, Justification, and Beneficiaries. Likewise, Kaarst-Brown (2005) applied the IT Culture to understand the impact of assumptions on Chief Information Officers (CIOs) in the business world. She found the IT Culture dimensions mattered the most in determining the factors that affected the status of CIOs within their organizations. Thus, the IT Culture dimensions are adapted for the Choctaw context in a manner similar to how Kaarst-Brown adapted them for CIOs in Table IV-1.

DESCRIPTIVE DIMENSION (KAARST-BROWN, 1995, p. 349, 2005, p. 290)	APPLIED TO THE CHOCTAW
Control Dimension – Who should control cultural ICT direction	Assumptions about whether tribal leaders, IT/cultural specialists, families, or individuals should control the direction of an ICT
Centrality Dimension – How central is ICT to cultural heritage	Assumptions about the significance of ICT to the future success, sharing, or survival of Choctaw culture
Skills Value Dimension – What is the value of ICT skills or knowledge	Assumptions about what it means to have or to lack ICT skills and who should have these skills considering a cultural ICT
Justification Dimension – What justifies investment in ICT	Assumptions about the purposes for which ICT should be used which justify new and further ICT investment
Beneficiaries of ICT Dimension – Who wins and who loses when ICT is used	Assumptions about who wins or loses as a result of an ICT developed and adopted for cultural heritage preservation

Table IV-1. Choctaw dimensions of IT Culture (Kaarst-Brown, 1995, p. 349, 2005, p. 290)

IT Culture Dimension #1: Control Over Choctaw Heritage ICT Direction

From the IT Culture theory, the Control dimension determines whether “IT direction should be controlled by the IT function, corporate executives, business units, IT and user groups together, or no one at all (because IT was already out of control)” (Kaarst-Brown, 2005, p. 290). Certainly the effects of ICT on power and change within organizations and communities are an important consideration. The idea of an ICT within the Choctaw Nation for preservation and offering the ability to share their culture with one another is no exception. The Tribe is a political organization that elects its members to positions of power and control.

However, there are preexisting dynamics of power and control within individual Choctaw families. Historically, when traditional Choctaw families make important decisions, the family’s choice is deferred to the family as a whole with the tone set by the eldest female. Prominence of the family is more important than the aggrandizement of the individual. During the preliminary investigation prior to this study, there was a discussion of a particular example of this observed phenomenon within the Choctaw community. A teenage girl in late high school was the recipient of a prestigious award for academic achievement, yet she turned the award down, because “she didn’t want to stand out from the family” (M. Hawkins, personal communication, March 22, 2011).

Often, the Choctaw participants spoke of the power of individual choice and the choice of the family to be one in the same. For example, one second-generation (son of a living elder) participant, Floyd¹⁶, put it this way:

It’s still going to be each individual’s choice. I mean, if, say for instance, my family decided that we want to go and have it done on the Internet; well, that’s our decision and we’ll share that. But if another family just says that they want to do their stories by audio but keep it to their selves, then they’ll just do theirs by audio. So, it’s going to be an individual choice, I believe, and it should be.¹⁷

¹⁶ Please note that all names given in the following analysis were pseudonyms made up to protect the identity of the participants. Also local colloquialisms and dialect in direct quotes have been preserved as much as possible.

¹⁷ Transcript 1, line 37

In no instance did a single participant assert the importance of having individual control by a singular person. As in Floyd's response, he referred to "each individual's choice" but when referring to the family unit never used a first person reference (such as I, me, or my.) This was a consistent pattern throughout most of the interviews.

However, this does not mean that all participants believed in families' sole control of the direction of an ICT for cultural heritage preservation and sharing. In another instance, Larry, a third-generation (grandson of a living elder) Choctaw, thought control over the direction of a cultural heritage ICT should be left in the hands of professionals instead:

Just the cultural and IT people should control the direction, I would say. Because the Chief and the Assistant Chief, they're real busy. And you got to add stuff to it. So, hopefully the cultural and IT people will be in charge... With their knowledge—the people that's over the cultural department and doing the technology bit—with their knowledge and the elders' knowledge that they get from the video and stuff, they can put it together all right.¹⁸

Other participants also expressed the importance of involvement of technical and cultural specialists in the direction and control of the project, but not always with the same revered confidence as Larry.

Also, a few participants believed that direction and control of cultural heritage preservation using ICT should be the responsibility of Tribal leadership. This topic was perceived to be highly sensitive. Most participants asked that the audio recorder be turned off during the portion of the interview where control by Tribal leaders was discussed—rightfully so. Out of respect for those who participated, these data were omitted from the study. As I reviewed the notes I took regarding those comments, the determination was made that the data did little to answer the research question anyway. Noting their existence is sufficient. However, there were several people who thought a cultural heritage ICT should be controlled in a general sense. Gene, a retired manual laborer, considered reasons for control of a heritage ICT. When asked about who should be in charge of the technology used for cultural preservation and sharing, he expressed his concern this way:

¹⁸ Transcript 3, line 31

Somebody needs to control it. Somebody needs to make sure they don't just put anything on there, or it could get out of hand.¹⁹

However, a very interesting instance of an attitude or belief that technology is out of control and should be avoided was a young Choctaw woman, Kelli. She grew up in the Choctaw Nation, went to college out of state, and had recently moved back to be near her family. She expressed a more fearful attitude about intermixing culture and technology in this way:

The Internet is all about being obsessed with information. But there's so many things that if you don't know about our ancestors, I don't think you're meant to know them. If we don't know, why are we obsessed with finding out? Why are we obsessed with knowing everything? Is it about control? Honestly, I think a lot of it is. If you know something, then not only can you control it yourself and how it affects you, but you can tailor and rewrite and skew that knowledge or message for the next person that gets it. And I think that's a heightened risk when you use something like the Internet, because there's no personal attachment to it. I think that's very evident when you see the way kids are being bullied now online. The anonymity of the Internet, it's just a very risky and scary—and I do say it's scary—thing, even though I use it everyday.²⁰

One point of singular interest in Kelli's statement is the fact that she admitted to having fears about technology—even though she still chose to use it.

Displaying a differing attitude, second generation Choctaw, Ricky, viewed control of an ICT for cultural heritage like this:

I think you have to involve, not only the cultural people within the tribe, but you have to also involve all your technology people. And also any department that has any want to do this.²¹

Noteworthy, Ricky also admitted to having worked for the Tribe in a supervisory position²², which would explain his recognizing the value of an organizational unit “department” in the above statement. I probed for further comment, and he continued:

Any department that wants to be a part of it and has, really has, access to people and knows people that would tell their stories or would be willing to be recorded. I think you have to involve several people and get the families and several departments involved.²³

¹⁹ Transcript 20, line 23

²⁰ Transcript 15, line 77

²¹ Transcript 17, line 17

²² Field notes, p. 2

Ricky's opinion is consistent with the functional aspects of the attitude that control should be shared, in which "IT and line can both present innovative solutions, regardless of technology, [and] negotiated approaches which balance available technology and business needs or objectives" (Kaarst-Brown, 1995, p. 480).

In addition, quantitative data were collected to measure the pervasiveness of the Control dimension among the participants. This study surveyed the *Chahta* storytellers, and thus the participant had already told their story or listened to their family member tell their story. With that experience fresh on their minds, I assessed how they felt about an ICT mediating *their* story and who should be *in charge* of it using a survey question at the beginning of the interview.

A cluster diagram was created to show the frequency of each response given, *i.e.*, the larger the circle's radius, the more frequent the response. As shown in the diagram for the Control dimension, 38% of the participants responded with the answer that demonstrated the Integrated pattern. Controlled and Demystified tied for the next most frequent response (both occurred 23% of the time). Revered and Fearful tied for the least frequent response pattern (8% each). Table IV-2 summarizes the instances of the Control dimension and the nature of the differentiating assumptions discovered with the interview questions (QUAL). Table IV-3 contains the survey question and a summary of the responses of all 26 participants (QUAN).

Next, how closely participants' qualitative interview responses relate to their quantitative survey choices over the control of a cultural ICT was calculated. The dominant qualitative code for each interview was assessed and paired with the person's survey response. Measuring the correlation coefficient (Pearson's *r*) across the Control dimension resulted in a value of 0.769, meaning that 77% of the participants' qualitative and quantitative responses were equivalent. The value is very high and shows a strong correlation between participants' QUAL and QUAN responses.

²³ Transcript 17, line 21

(QUAL) Dimension #1: Control Over Choctaw Heritage ICT Direction

INTERVIEW QUESTION	8. Are there particular people you feel should be in charge of cultural heritage preservation where technologies are involved? Do you have any concerns about this?
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ASSUMPTIONS (KAARST-BROWN, 1995, p. 353)	CHOCTAW DIFFERENTIATING ASSUMPTIONS	PATTERN	EXAMPLES
IT is out of control—avoid it	Technology is out of control—avoid it	Fearful	“Very risky and scary” (Kelli)
Business executives should control IT	Tribal leaders should control the cultural heritage ICT	Controlled	“Somebody needs to control it” (Gene)
IT professionals should control IT	Technical and cultural specialists should control the cultural heritage ICT	Revered	“[Computer people] can put it together all right” (Larry)
Business units should control their own IT direction	Families should control the cultural heritage ICT direction	Demystified	“That’s our [family] decision” (Floyd)
Control should be shared between the IT department and users	Control should be shared between families and technical/cultural specialists	Integrated	“Get several people...involved” (Ricky)

Table IV-2. Differentiating assumptions of the Choctaw Control dimension

(QUAN) Dimension #1: Control Over Choctaw Heritage ICT Direction

SURVEY QUESTION	1. Who do you think should be in charge of how computer technology is used to keep your family's stories and share them with the next generation?
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POSSIBLE RESPONSES	PATTERN	RESPONSE PATTERN
• We should not be using technology to preserve our stories or other parts of Choctaw culture	Fearful [F] (8%)	D
• Tribal leaders (Chief, Assistant Chief, Tribal Council, and other leaders)	Controlled [C] (23%)	R
• Technology/cultural specialists—people who know a lot about technology and study our culture	Revered [R] (8%)	I
• You and your family should decide when and how to use technology to preserve or share your cultural heritage	Demystified [D] (23%)	F
• Choctaw families like you working with the technology/cultural specialists	Integrated [I] (38%)	C

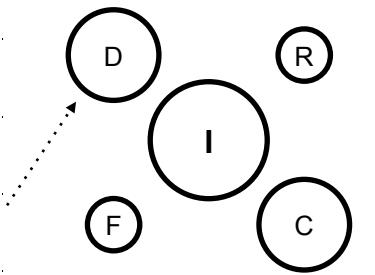


Table IV-3. Quantitative response frequency of the Choctaw Control dimension

The cluster diagram displayed below (Figure IV-1) demonstrates the convergence of the QUAL and QUAN data capturing both the nature and pervasiveness of the Control dimension. At

the center is the most prevalent belief that control of a Choctaw cultural heritage ICT should be shared (the Integrated pattern)—families, IT/cultural specialists, and others working together.

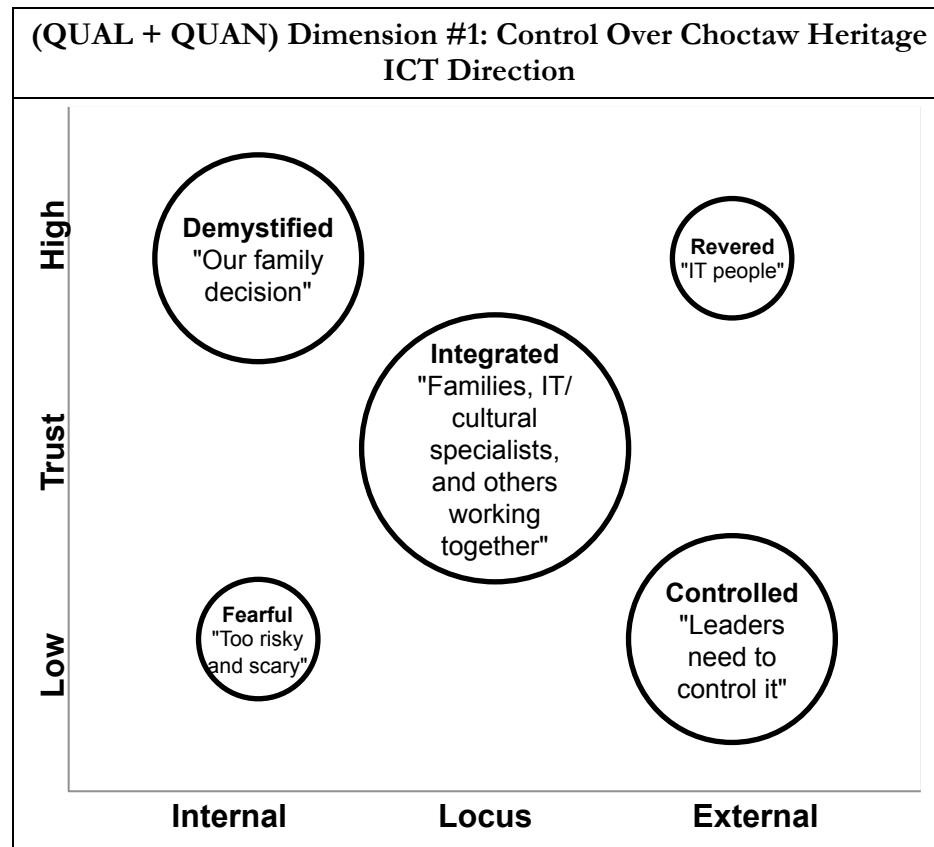


Figure IV-1. Convergence of qualitative and quantitative data of the Choctaw Control dimension

Additionally, beliefs that families and Tribal leaders should be in control were found. Those that leaned toward the belief that families should be in control (the Demystified pattern) showed higher levels of trust in ICT to be a positive tool in preservation. They did, however, also lean towards a locus of control that was internal. Such trust was contingent upon their direct involvement in decision making about the ICT—such as Floyd declaring that it should be his family's "choice and we'll share it." Those that leaned towards Tribal leaders controlling the ICT (the Controlled pattern) tended toward a less favorable outlook of whether using an ICT for cultural preservation and sharing was a viable way to pursue. They saw a trustworthy entity (*e.g.*, Tribal leaders, a group of elders, a team of cultural knowledge holders) keeping an eye on things—such as

Gene stating “somebody needs to control it.” The Demystified and Controlled patterns illustrate the two extremes in internal and external locus of control. The Integrated pattern holds a belief of shared control balanced between the two extremes of high-low trust and an internal-external locus of control. They presume ongoing dialog and joint decision-making to ensure appropriate use.

An attitude on the outskirts of most of the participants was the Fearful pattern that an ICT is too out of control for use in cultural preservation. Also, the Revered pattern was quick to trust an ICT with their cultural heritage and would happily leave it in the hands of cultural and IT specialists. These attitudes were definitely in the minority but still present.

IT Culture Dimension #2: Centrality of ICT to Choctaw Heritage Preservation and Sharing

According to IT Culture theory, centrality or importance of using IT can be manifested as “IT is imperative to success, depends on whether or not IT work is sponsored, is only central to operational and tactical goals, depends on the strategic problem being addressed, or is not significant at all, unless required by external forces” (Kaarst-Brown, 2005, p. 290). The importance of using ICT to preserve and share Choctaw culture emerged as a theme. Again, this dimension was found by Kaarst-Brown (1995). Employees in her study’s two insurance companies reflected on how important it was to use technology to meet the business need. In the same spirit, Choctaws were asked how important it was to use technology to preserve and share their culture. Responses varied across all five archetypal IT Culture patterns.

Ethel (an elder) saw the centrality of ICT hinging upon the involvement of the right people—in this case, the cultural and technology specialists sponsoring the project.

I really think [*name of a cultural specialist*] and that group does a great job because they know how to put everyone at ease, so there's no question about, ‘Why is this being done?’²⁴

²⁴ Transcript 9, line 49

After all the interview questions were asked, I came back to this response I starred in my notes and asked if her same attitude would persist if other people were running the storytelling project. She replied, “Depends on who it was.²⁵”

Some Choctaws stated that technology seemed the only way to preserve the culture. Karen, a third-generation Choctaw (an elder’s granddaughter), pondered in these terms of centrality of ICT being used for cultural preservation:

I think of this as moving forward as a generation. It’s only going to get tougher to preserve these cultures. I mean, we have a hard enough time now in this day and age because everyone’s getting so old. And not very many of us know a whole lot and can hang on to that culture. So, I feel like that would be the next step is that we would have to move forward with the generation because times are changing. If not with computers, then how?²⁶

Becky, a Choctaw elder, expressed an assumption of family-centric centrality and how important their heritage is to the next generation.

I’ve got a sister in California who would love it. I just don’t want to see it lost or forgotten, because when I’m gone, my great grandkids will want to know these things.²⁷

In a later part of her interview, Kelli, who saw technology as “risky and scary” in response to the question on Control, came back to her fears about Choctaw culture being mediated by ICT.

The Internet can’t truly share like you and I are sitting here talking. There’s no room for feedback. There’s no room for sitting around a table face-to-face or something and discussing. That’s not what the Internet is for.²⁸

Kelli reinforced her Fearful pattern concerning technology and its use to preserve and share the culture she grew up around.

Sharon described herself as a retired Choctaw schoolteacher and descendant of two different Choctaw chiefs. She shared the dynamics of the importance of using ICT by juxtaposing it against Choctaw nature and values. She stated in an unrecorded portion of the interview that everything

²⁵ Field notes, p. 22

²⁶ Transcript 2, line 51

²⁷ Transcript 19, line 66

²⁸ Transcript 15, line 201

precious and worth keeping in her family was kept “in the attic.²⁹” I asked her how she felt about things in her “attic” being brought out and shared on the Internet, to which she replied,

Well, you can’t help but think about it without just thorough excitement, because I think that I would want to be involved with an important project like this is where we’re able to share our culture more broadly. So is it important? Yes. Emphatically, yes, yes. Whatever method that becomes useful to spread the history, spread the word, spread the histories, make the culture more available to more people, make it more readily available, because learning about the culture can come in so many different forms... But we can’t forget about getting together in-person... There’s the interactive way and the technology way. One’s not necessarily better, they’re just different and of equal importance.³⁰

Sharon contrasted her experiences as an educator to make her point. She saw using ICT to share and preserve the culture the same way she viewed teaching using computer technology—different than traditional means but of equal importance.

Table IV-4 summarizes the instances of the Centrality dimension and the differentiating assumptions discovered that were derived when the ICT Culture theory was applied to the data. Also, survey responses to the Centrality dimension are displayed in Table IV-5. This question brought to the forefront the activity of cultural preservation in establishing the role of ICT. This activity represented the “long term survival” and “strategic business problems” of the culture.

To converge the survey and interview data, it was measured how well the qualitative responses correlated to their quantitative ones over the Centrality of a cultural ICT. The most prominent qualitative code for each interview was taken and paired with the person’s survey choice. Measuring Pearson’s *r* across the Control dimension resulted in a value of 0.846. Thus, 85% of the participants’ interview and survey responses were congruent.

²⁹ Field notes, p. 3

³⁰ Transcript 4, line 65

(QUAL) Dimension #2: Centrality of ICT to Choctaw Heritage Preservation and Sharing

INTERVIEW QUESTION	6. How do you feel about you and your family's stories being available on the Internet for everyone to hear? How important is it to you that we use technology to preserve and share your culture?
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ASSUMPTIONS (KAARST-BROWN, 1995, p. 356)	CHOCTAW DIFFERENTIATING ASSUMPTIONS	PATTERN	EXAMPLES
Not significant at all	Not significant at all	Fearful	“That’s not what [technology] is for” (Kelli)
Significance depends on who is sponsoring the IT project	Significance depends on who is sponsoring the preservation project	Controlled	“Depends on who it is” (Ethel)
Imperative to corporate survival and success	Imperative to cultural survival and preservation success	Revered	“If not with computers, then how?” (Karen)
Critical to operational and tactical goals at the business unit level	High level of centrality to the preservation and sharing of the individual family’s culture	Demystified	“Make sure [family’s culture] isn’t lost or forgotten” (Becky)
Depends on the nature of the strategic business problems	Selective centrality, depending on the nature of the sharing experience	Integrated	“Different but equal” (Sharon)

Table IV-4. Differentiating assumptions of the Choctaw Centrality dimension

(QUAN) Dimension #2: Centrality of ICT to Choctaw Heritage Preservation and Sharing

SURVEY QUESTION	2. How important to you is it that we use computer technologies to keep your family's stories and share them with the next generation?
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POSSIBLE RESPONSES	PATTERN	RESPONSE PATTERN
• Technology is <i>not significant</i> at all to preserving our culture	Fearful [F] (19%)	D
• It's more important <i>who</i> is involved rather than whether or not technology is involved	Controlled [C] (15%)	R
• The preservation of our culture is completely dependent upon computer technologies	Revered [R] (12%)	I
• Very important that we [individuals or families] have some way of preserving Choctaw culture	Demystified [D] (31%)	F
• Very important to <i>certain</i> parts of Choctaw culture, but not all	Integrated [I] (23%)	C

Table IV-5. Quantitative response frequency of the Choctaw Centrality dimension

The cluster diagram in Figure IV-2 shows the converged (QUAL+QUAN) data. This figure captures both the nature and pervasiveness of the Centrality dimension among the *Chabta* storytellers and their family members. The most prevalent belief was that using ICT for Choctaw cultural heritage preservation was highly important for the family, first and foremost. The data

revealed the Demystified pattern to have a significant amount of faith in ICT to preserve and share the culture, so long as the locus of its importance was internally centered on the family.

Although the Demystified pattern that saw this effort as highly important for the family was most prevalent, there were two other patterns of assumptions that came in a close second and third in their prevalence. The second most significant pattern was the Integrated pattern that believed the centrality of ICT to their cultural sharing hinged on the sharing experience. This balanced view saw that the sharing experience could be either positive or negative. A positive experience could lead to more trust in ICT to play an important role in preservation, but a negative experience could result in resistance to or rejection of ICT.

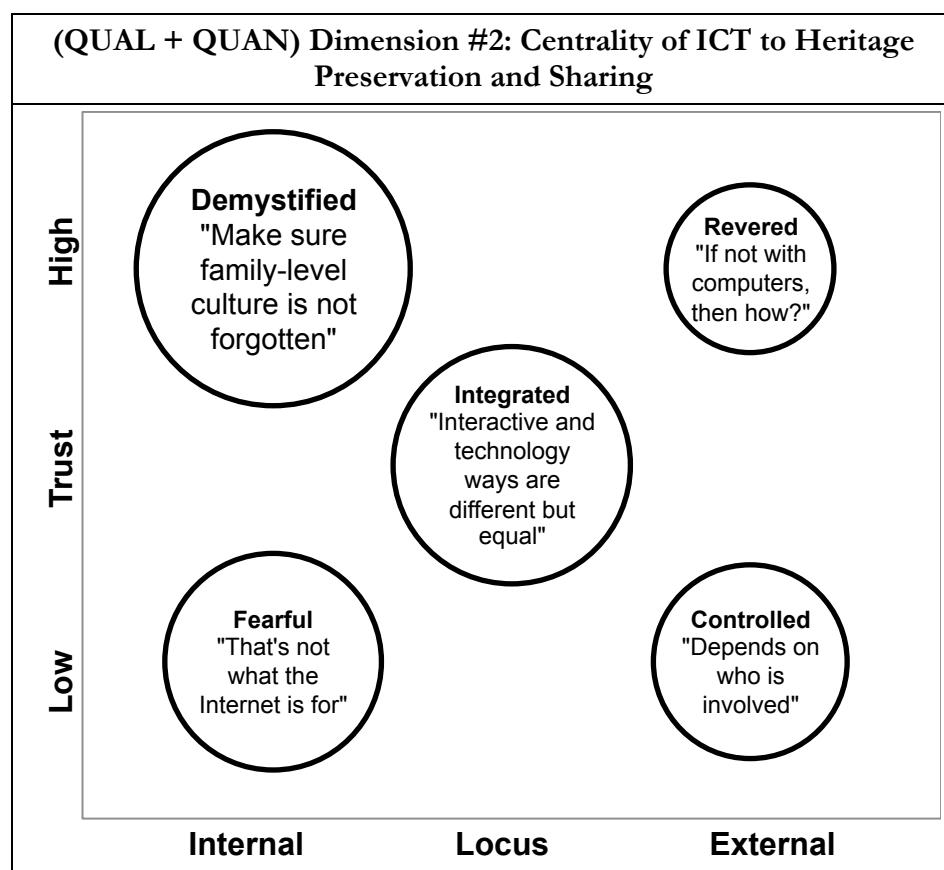


Figure IV-2. Convergence of qualitative and quantitative data of the Choctaw Centrality dimension

The third most prevalent pattern was the Fearful archetype that did not trust ICT to play an important role in preservation and sharing, like Kelli, who adamantly believed that this is “not what the Internet is for.” Interesting to note, most of the Choctaws who fell into this pattern were both young and extensive users of computer technology. This pattern seems to echo the argument “cyberspace is no place for tribalism” (C. Howe, 1998).

IT Culture Dimension #3: Value of Choctaw ICT Skills and Knowledge

The IT Culture theory reveals different levels of appreciation for IT skills in an organization. These levels are “IT skills and knowledge are highly valued and rewarded, not valued as highly as business skills, necessary for some people, neutral on their own but valuable when partnered with business skills, or not valuable at all and maybe even threatening” (Kaarst-Brown, 2005, p. 290). If the Choctaws need to learn how to use ICT in connection with their cultural heritage preservation, an understanding is imperative of their assumptions about the value of having ICT skills. Kaarst-Brown (1995) found that technology skills and knowledge were sometimes viewed as competing with skills and knowledge of the traditional insurance business—so much so in some cases that a low value was placed on having ICT skills. During this study, most of the participants saw some value in possessing a certain degree of technology skill. However, an important distinction came when they compared what would be considered an functional level of skill today with the technology skills and cultural knowledge of their elders.

Angela, a millennial college student and a fourth generation participant (her matriarch is her still-living great grandmother), shared a perspective consistent with the Revered pattern. When speaking of herself and her full-blood grandmother, she predicted an early adoption of cultural sharing via an ICT by her and her grandmother.

And I know my grandma, she uses Facebook, and she would really like something like that if it was tied into the culture... I would too.³¹

Lorene gave a valuable insight about the value of ICT skills, but emphasized the role leaders should play.

I wouldn't mind learning more about computers. I think our councilmen should bring some computer classes to our community centers.³²

On the other hand, Nadine, a widow from outside the Choctaw Nation tribal area, reflected on the avoidance of technology skills in herself and her still-living elderly Choctaw mother,

I think [the older generations] feel the same way, because computers are taking over. My mother does not have a computer and does not want to learn how to use a computer, and I think that goes along with her generation. I'm kind of the same way about it.³³

It was noted how she and her elder did not value technology skills and even saw them as threatening to their way of life.

An example of the Demystified pattern concerning the value of ICT skills was Floyd, who talked about his family and how they resolve conflicts over ICT use. He stressed the family-level value of skills.

My mom was against this whole storytelling thing at first, but I think it was just because computers intimidate her a little bit. But after we talked about it as a family, she came around. I told her, 'Don't worry, Mom. I'll show you how.'³⁴

This scenario painted a situation where even though someone is reluctant to use technology, other family members with ICT skills are able to resolve conflicts of technology use internally. This shows how Choctaws in the Demystified pattern don't rely on outside help to learn ICT skills. They want to do it themselves.

Sharon, the retired Choctaw schoolteacher, related the Integrated pattern to her experience in the classroom.

³¹ Transcript 8, line 41

³² Transcript 19, line 78

³³ Transcript 13, line 81

³⁴ Transcript 1, line 92

A former teacher friend of mine and I were discussing technology versus what we call the ‘old-fashioned’ way of teaching. He and I both decided we probably weren’t cut out for the technology because we weren’t great at that. I said I love to look a student in the face, and I love to question students and ask them if they understand. I live for them to repeat back to me what they heard me saying. And I said I love to have that blackboard right behind me, and I’m talking old-fashioned blackboard. I wore out more pieces of chalk on that blackboard. I would have one on one end of the classroom and one on the other, because I was always moving in the classroom—always in and amongst my students, challenging them to learn. It was such an interactive thing for me, and I didn’t ever let one student not participate. And I told him I wasn’t frozen in front of a computer. Although I was not bad-mouthing computers at all. I was saying this is the way the world is. My technology skills were not up to speed, and I just had to move aside... I think people who know computers and those who know the culture will have to come together to teach the next generation.³⁵

The survey question was asked and responses tabulated about the participants’ perceived value of having ICT skills as shown in the following figure. The question caused the participant to reflect on their own knowledge of how to use ICT, and the implications of a lack in technology skills would have on their ability to participate in cultural sharing if an ICT is used. Table IV-6 and Table IV-7 provide a summary of the Skills Value dimension.

Next, how closely participants’ interview responses related to their survey answers over the value of ICT skills was calculated. The pattern code recorded for each interview was paired with the person’s survey response. Measuring the correlation across the Skills Value dimension resulted in a high value of 0.71, meaning that 71% of the participants’ QUAN-QUAL pairs were equivalent.

The cluster diagram displayed in Figure IV-3 demonstrates the converged data gathered during the project. This figure captures both the nature and pervasiveness of the Skills Value dimension among the Choctaw. At the center is the majority belief that ICT skills are valuable in a cultural heritage project. Those with such skills should be partnered with those who have the greatest cultural knowledge. This balanced view sees the locus of value between internal and external stakeholders. Those with ICT skills are valuable as long as the cultural knowledge holders aren’t left

³⁵ Transcript 4, line 65

behind in the process. It was important to her and others that technology skills not supersede cultural skills. Half of the participants showed the Integrated pattern.

(QUAL) Dimension #3: Value of Choctaw ICT Skills and Knowledge			
INTERVIEW QUESTION	7. If you had the right technology and knew how to use it, would you use it to listen to other stories and share your stories with others?		
ASSUMPTIONS (KAARST-BROWN, 1995, p. 363)	CHOCTAW DIFFERENTIATING ASSUMPTIONS	PATTERN	EXAMPLES
IT skills are not valued because they are threatening	ICT skills are not valued because they are threatening	Fearful	“Computers are taking over” (Nadine)
IT skills are not as important as business skills	ICT skills are not as important as “Choctaw knowledge”, but people with ICT skills can be useful if directed by leaders	Controlled	“[Leaders] should offer us computer classes” (Lorene)
IT skills are highly valued and rewarded	ICT skills are highly valued and rewarded; may give a cultural advantage	Revered	“Would really like something that were tied to the culture” (Angela)
IT skills are necessary for certain business unit managers and staff	ICT skills are necessary for certain family members	Demystified	“Came around after we talked as a family” (Floyd)
IT skills are valuable when partnered with holder of business skills	ICT skills are valuable when partnered with holders of “Choctaw knowledge”	Integrated	“[IT and cultural specialists] will have to come together” (Sharon)

Table IV-6. Differentiating assumptions of the Choctaw Skills Value dimension

(QUAN) Dimension #3: Value of Choctaw ICT Skills and Knowledge			
SURVEY QUESTION	3. If computers and technology are used to preserve Choctaw culture, how valuable to you is it that you and your family have computer and technology skills and know how to use them?		
	POSSIBLE RESPONSES	PATTERN	RESPONSE PATTERN
• Computers and technology skills are not valuable and are even threatening to our culture		Fearful [F] (15%)	
• Computer and technology skills are not so important to our culture, but may be useful if the Tribe’s leaders say so		Controlled [C] (15%)	
• Having computer and technology skills is very valuable and important		Revered [R] (8%)	
• We should all know how to use computers and technology; it’s simply expected in this day and age		Demystified [D] (12%)	
• In this case, computer and technology skills are valuable only with people who do not know Choctaw culture very well		Integrated [I] (50%)	

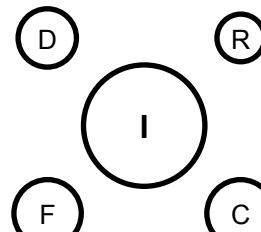


Table IV-7. Quantitative response frequency of the Choctaw Skills Value dimension

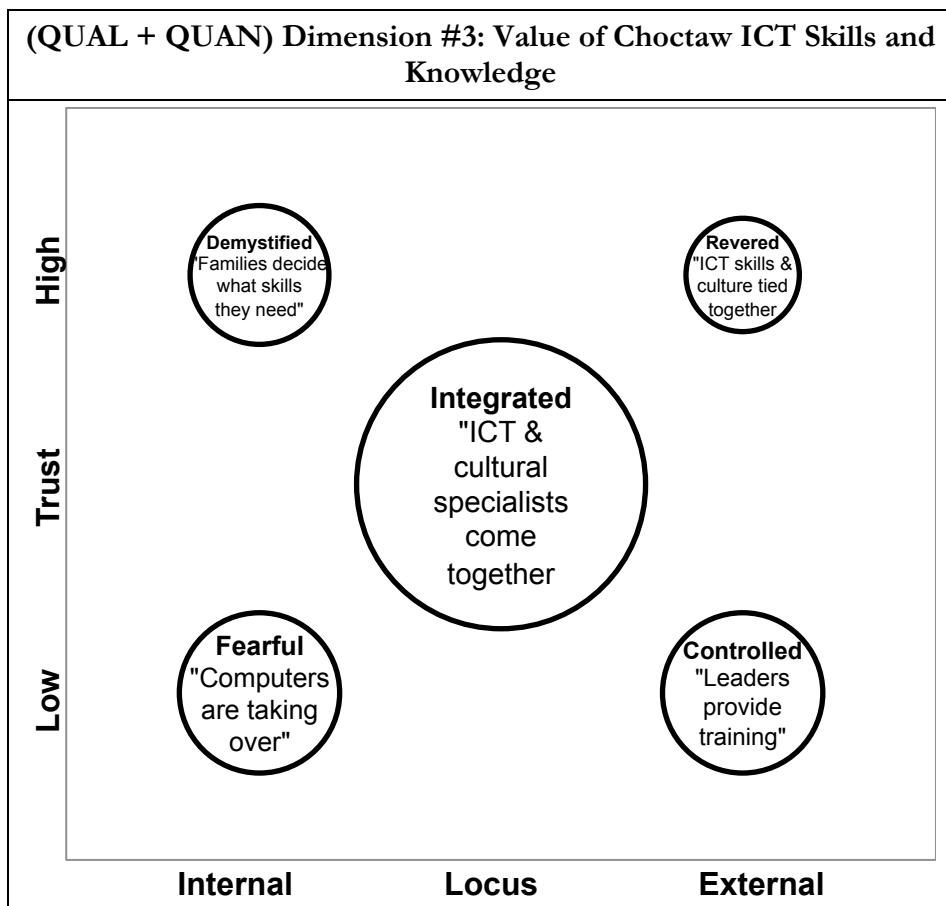


Figure IV-3. Convergence of qualitative and quantitative data of the Choctaw Skills Value dimension

IT Culture Dimension #4: Justification for Choctaw Heritage ICT Investment

An investment in ICT usually requires justification. According to the IT Culture theory, these justifications are “when [the ICT] could lead to innovation, reduce staff or costs, increase unit level productivity, assist a strategy (such as increase quality), or only when there is no other choice to survive or stay competitive” (Kaarst-Brown, 2005, p. 291). The decision of whether the Choctaw should invest in IT, including technologies for cultural heritage preservation and sharing, represents both opportunity and risk. Kaarst-Brown (1995) found that the insurance companies in her study wrestled with the same decision. Although the rationale changed from business decisions to cultural decisions when the theory was applied in this ethnocultural setting, there were parallel assumptions. For example, in the original study Kaarst-Brown (1995) saw a theme of investing in technology to

help reduce staff and their associated costs. In terms of the Choctaw, I found the assumption of justification for ICT investment to be influenced by the fact that those with cultural knowledge are already being reduced as the eldest generation is passing away. In some cases, the realization of this has created a sense of urgency with some Tribal members to capture and preserve the culture now before it disappears.

Ethel agreed that an investment in ICT was still necessary, but saw it as the responsibility of Tribal leaders to set the tone.

I think the tribal leaders should be making this decision [to invest in a cultural ICT]. That's what we elect them for, right?³⁶

Becky reflected how an investment in technology had improved the cultural learning (or productivity) of her family (Demystified).

Well, it's the information age. And we [as a family] were talking about some of the interest in the Choctaw Pony the other day. My grandchildren went right to the Internet and got page after page of good literature, good facts, good stuff. And it really helped us.³⁷

At the same time, this attitude was slightly different within her family. One of Becky's college-going granddaughters, Mandy, possessed the Revered assumption about an investment in technology for cultural heritage and opportunities to share that knowledge,

There is the chance to let more people know, because think of how many people are on Facebook? You put something interesting about Choctaws on Facebook, it's probably going to go crazy because, like, think of how many hits funny movies get. Think of something that people will really want to know about the Choctaws, and it would, like, go viral.³⁸

Both of these family members exhibited different assumptions about the current advantages and future opportunities technology might lend to Choctaw culture. There are sometimes differences in archetypal patterns even within the same family. (See page 162 for more discussion on this topic.)

³⁶ Transcript 9, line 122

³⁷ Transcript 6, line 19. The "Choctaw Pony" is a spiritual creature in Choctaw folklore.

³⁸ Transcript 22, line 31

Lizzie, a second generation Choctaw who attested to performing extensive Native American genealogical work and keeping her records in “boxes and boxes of papers,”³⁹ foresaw the coming survival pressures the Tribe would face as older generations disappear.

I don’t like it, but what other choice do we have? Computers are here to stay, but if we don’t do something, our culture won’t be.⁴⁰

Lizzie offered no other alternative than to accept that computer technology as the only alternative to cultural heritage preservation. She admitted that she resisted getting all her records scanned, because she did not trust that it was “really there,” unless she could “actually see them.”⁴¹

Greg, a young Choctaw, saw the justification for technology investment from a different perspective.

So are we doing this stuff online, because it is the fastest and the cheapest? When you’re doing something quickly, it leads to a lot of mistakes, I know from my work experience. To me it seems very obvious that this is kind of a bad idea; or rather, not thinking about it more and not doing this more slowly, with the idea of using technology and culture, technologicalizing [sic] culture or whatever. We’re putting all this money into technology, because it’s faster and cheaper. Seems ironic to me. Show me something done fast and cheap, and I’ll show you something done wrong.⁴²

According to Greg, the justification varied depending on the strategy chosen to preserve the culture and the time and quality considerations to make sure it is done right.

The justification of investment in an ICT was measured quantitatively with the research participants as well. In response to the Justification survey question, the participants considered how important is it to them that they own or are able to purchase an ICT needed to participate in cultural sharing. Also, the question asked whether that need was justification enough to invest some of their own money to acquire the appropriate technology. In response to this question, the choice that corresponded with the Integrated pattern—*i.e.*, it depends on what the new technology is needed

³⁹ Field notes, p. 16

⁴⁰ Transcript 11, line 247

⁴¹ Field notes, p. 16

⁴² Transcript 25, line 94

for—was selected most often (42%). Fearful and Controlled responses came in as the second most prevalent attitude or belief (23% each). The Revered response was given 8% of the time while the frequency of the Demystified response was minuscule (4%).

Table IV-8 and Table IV-9 are summaries of the Justification dimension and the differentiating assumptions that surfaced when the ICT Culture theory was applied to the interview (QUAL) and survey (QUAN) data.

To complete the Justification dimension analysis, it was necessary to see how closely participants' qualitative interview responses related to their quantitative survey choices over the justification in ICT investment. The dominant qualitative code for each interview was assessed and paired with the person's survey response. Measuring the Pearson's r across the Investment dimension resulted in a value of 0.696, meaning that 70% of the participants' qualitative and quantitative responses were equivalent to a high degree of certainty.

The cluster diagram displayed in Figure IV-4 demonstrates the converged data gathered through the mixed methodological procedures. This figure captures both the nature and pervasiveness of the Justification dimension among the Choctaw. At the center is the most prevalent belief that the justification of investment in ICT for the purposes of cultural sharing and preservation depends on the strategy utilized, time available, and the quality of the end product. Greg typified this prevalent attitude and belief that investing in ICT because it is fast and/or cheap would result in a flawed result. Quality is of utmost priority for those who hold this pattern. This also suggests that if technology does not provide sufficient quality—*i.e.*, do the culture justice—it should not be used. This pattern was found in nearly half of the participants.

(QUAL) Dimension #4: Justification for Choctaw Heritage ICT Investment

INTERVIEW QUESTION	10. Do you think that Tribal leaders should be investing money in new computers or other technology for Choctaw cultural preservation? Why or why not?
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ASSUMPTIONS (KAARST-BROWN, 1995, p. 368)	CHOCTAW DIFFERENTIATING ASSUMPTIONS	PATTERN	EXAMPLES
Competitive or survival pressures only; No choice or must use IT to survive	No choice but to use ICT for the culture to survive	Fearful	“What choice do we have?” (Lizzie)
IT will reduce staff and/or costs (same output with less staff)	ICT will help maintain the culture as the eldest generation disappears	Controlled	“Tribal leaders should be making this decision” (Ethel)
Development and experimentation with IT provides opportunities for finding new or improved services (innovation)	ICT provides opportunities for finding new and innovative ways to share the culture	Revered	“Choctaw could...go viral” (Mandy)
IT supports unit level strategy; improves personal and unit level productivity	ICT improves cultural productivity and learning in our family	Demystified	“It really helps us [as a family]” (Becky)
Justification varies depending on the business problem or strategy and opportunity (cost, quantity, quality, variety)	Justification varies depending on the strategy and time and quality considerations	Integrated	“Do it fast and cheap and...do it wrong” (Greg)

Table IV-8. Differentiating assumptions of the Choctaw Justification dimension

(QUAN) Dimension #4: Justification for Choctaw Heritage ICT Investment

SURVEY QUESTION	4. For families such as yours, what do you feel is a good reason or what would justify buying new computers or other technology for you and your family?	
POSSIBLE RESPONSES	PATTERN	RESPONSE PATTERN
• If and only when it's absolutely necessary	Fearful [F] (23%)	D
• When the new computer or other technology can help us save money in the long run	Controlled [C] (23%)	R
• When the new computer or other technology can make life easier, it would make sense	Revered [R] (8%)	I
• We should buy new computers and other technology to play around with—we might never know what use it can be unless we try it out	Demystified [D] (4%)	F
• It depends on what the new computer or other technology is needed for	Integrated [I] (42%)	C

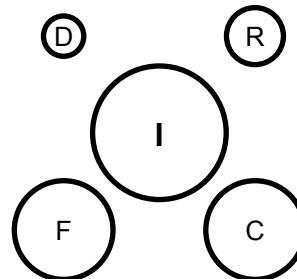


Table IV-9. Quantitative response frequency of the Choctaw Justification dimension

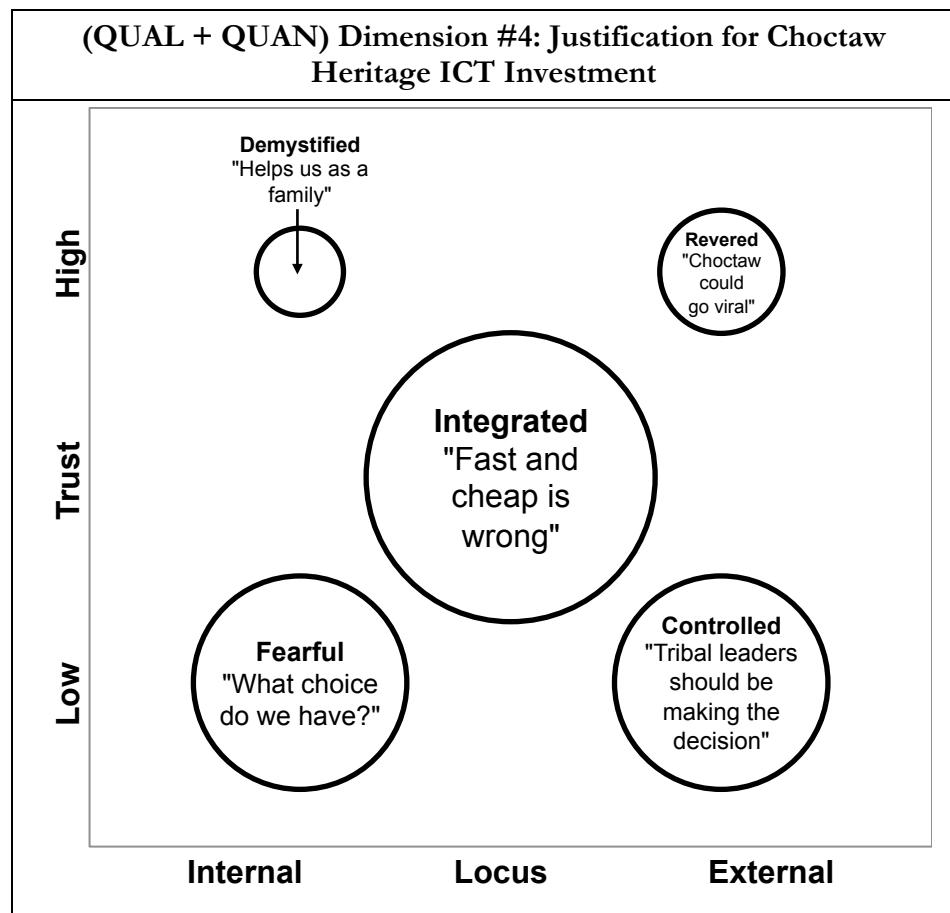


Figure IV-4. Convergence of qualitative and quantitative data of the Choctaw Justification dimension

IT Culture Dimension #5: Beneficiaries of a Choctaw Heritage ICT

According the ICT Culture theory, certain people are believed to either win or lose when new technologies are introduced. However, this assumption is more complex than that and better viewed as a spectrum.

[The beneficiaries] spectrum of assumptions reflects more than the expected business value of IT. It reminds us that technological change can produce fears about being on the losing side of change. Business groups that fear the effect of a potential IT investment on themselves are likely to view the CIO and the IT team negatively. On the other hand, technological changes pushed by some departments can take a heavy toll on the IT function itself, making IT staff feel like losers as they attempt to meet unreasonable expectations (Kaarst-Brown, 2005, p. 292).

If the Tribe adopts an ICT to be used to share and preserve its culture, there will be those who benefit and those who do not. While a cultural ICT for the Choctaws can bring with it great

benefits, there were fears that some Choctaw tribal members would be on the losing end of the stick. Many of the participants perceived an ICT for cultural heritage preservation and sharing as beneficial to their families. Participants most often spoke of their culture from the perspective of their family, as if the family was the hub and their cultural expressions were the spokes of a cultural wheel. It is evident how important family is as the “individual business unit” of their culture. Floyd, who believed it was the family’s decision of control over a cultural ICT (Demystified), continued the theme of family into his comments on who would benefit from this project,

I think it’s a benefit, not only to our family to help preserve them within our entire family, but to entire Choctaw families. It would also give other Choctaw families stories to hear. And then it might also help them in a way to help do their own stories.⁴³

However, Gene, who asserted earlier that, “somebody needs to control it,” was concerned that losses would occur unless Tribal leaders were there to control the ICT development.

Just make sure Chief and them are involved. That’s the best way to make sure that we don’t come out on the losing end of the stick.⁴⁴

Also, Karen had previously stated that she did not see how Choctaw culture could be preserved with any other means *but* technology. She exhibited the Revered pattern in herself and younger generations,

I don’t think we would lose anything at all. I think it could only benefit us. I mean, because actually if you don’t get it out there, because kids these days—young generations these days—that’s all they use. I mean, that’s what they *live by*. So, I think it’s almost going to be a loss if you don’t use it.⁴⁵

From a different perspective, Bucky, a skilled blue-collar tradesman in his twenties, answered the beneficiaries question in this way:

That question doesn’t gel well with me. I mean, you have to make very obvious decisions about who’s going to win in this situation, who’s going to lose, who’s going to come out ahead, and who’s going to eat dust, or however you want to term it. I can’t do that. I don’t expect that anyone really can. But if I had to say, in general, I think... in the end, who’s

⁴³ Transcript 1, line 5

⁴⁴ Transcript 20, line 103

⁴⁵ Transcript 1, line 41

really losing is the memory of the people who didn't have a choice in this. You know those people that are losing.⁴⁶

Jeff's grandmother had a medical procedure and was concerned that they would have lost her stories if they had not recorded them prior to the procedure. He stated who he thinks wins and loses when an ICT is used for cultural preservation and sharing.

I think it'll be about 70/30, to be totally honest—70 percent that it's benefitting and 30 percent that it will kind of hinder. Because there is that 30 percent that, you know, if the story's recorded, they don't feel like they have to tell it again. They'll say, 'It's already there. You can listen to that, so why should I have to tell this again?'⁴⁷

The survey question was asked of the participant pertaining to who they perceived wins or losses when ICT are implemented. This question was used to measure the "grandmother's lap" phenomenon. That is, what happens when we take the telling of stories from the matriarch and place them on an ICT to be shared? The question encouraged the participant to reflect about the benefits and losses to be experienced by stakeholders and others in the transmission of their cultural knowledge via ICT. Again, the response that corresponds to an Integrated pattern was most popular by a slight majority (54%). Revered was the second most chosen response (23%). Fearful (12%), Controlled (8%), and Demystified (4%) rounded out the least selected. Table IV-10 and Table IV-11 contain a summary of the Beneficiaries dimension and its differentiating assumptions.

Next, the qualitative responses were compared for correlation to quantitative responses over who wins and who loses if a cultural ICT is to be implemented. The most prominent qualitative code for each interview was taken and paired with the person's survey choice. Measuring Pearson's r across the Beneficiaries dimension resulted in a value of 0.808. Thus, 81% of the participants' interview and survey responses were congruent, which is considered very high and favorable.

⁴⁶ Transcript 24, line 43

⁴⁷ Transcript 10, line 61

(QUAL) Dimension #5: Beneficiaries of a Choctaw Heritage ICT

INTERVIEW QUESTION	11b. In terms of benefits or risks, do you have any concerns about what current Choctaw or future generations might lose or gain through use of technologies?		
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ASSUMPTIONS (KAARST-BROWN, 1995, p. 372)	CHOCTAW DIFFERENTIATING ASSUMPTIONS	PATTERN	EXAMPLES
No one wins, or non-technology staff lose	No one wins, or non-technology people lose	Fearful	“Who’s really losing is the... people who didn’t have a choice in this” (Bucky)
Organization wins, IT staff and others may lose	The Tribe may lose if leaders do not intervene	Controlled	“Make sure [Tribal leaders] are involved” (Gene)
IT professionals win, organization and customers win	No one would lose, youth especially would win	Revered	“We [wouldn’t] lose anything at all” (Karen)
Individual business units win, no one loses	Families win, no one loses	Demystified	“A benefit to entire Choctaw families” (Floyd)
Organization and customers win with selective losses	Tribe wins with selective losses	Integrated	“70/30” (Jeff)

Table IV-10. Differentiating assumptions of the Choctaw Beneficiaries dimension

(QUAN) Dimension #5: Beneficiaries of a Choctaw Heritage ICT

SURVEY QUESTION	5. Who do you think will benefit and who will lose if we use computer technology to keep you and your family’s stories and share them with the next generation?		
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POSSIBLE RESPONSES	PATTERN	RESPONSE PATTERN
• No one wins, or we will lose more than we hope to gain	Fearful [F] (12%)	D
• Generally we all will win, but I feel sorry for the computer people who have to do all the work	Controlled [C] (8%)	R
• Everyone wins	Revered [R] (23%)	I
• The families that use it will benefit for sure, and no one will really lose	Demystified [R] (4%)	F
• The Tribe and the next generation will benefit, but our elders and storytellers may lose a bit	Integrated [I] (54%)	C

Table IV-11. Quantitative response frequency of the Choctaw Beneficiaries dimension

The cluster diagram in Figure IV-5 shows the converged data. This figure captures the nature of the Beneficiaries dimension among the participants. The most prevalent assumption was that the Tribe as a whole will win with a few selective losses along the way. Jeff summarized this

pattern well when he stated the belief that “70 percent will benefit and 30 percent that it will kind of hinder.” Over half the participants shared a similar assumption.

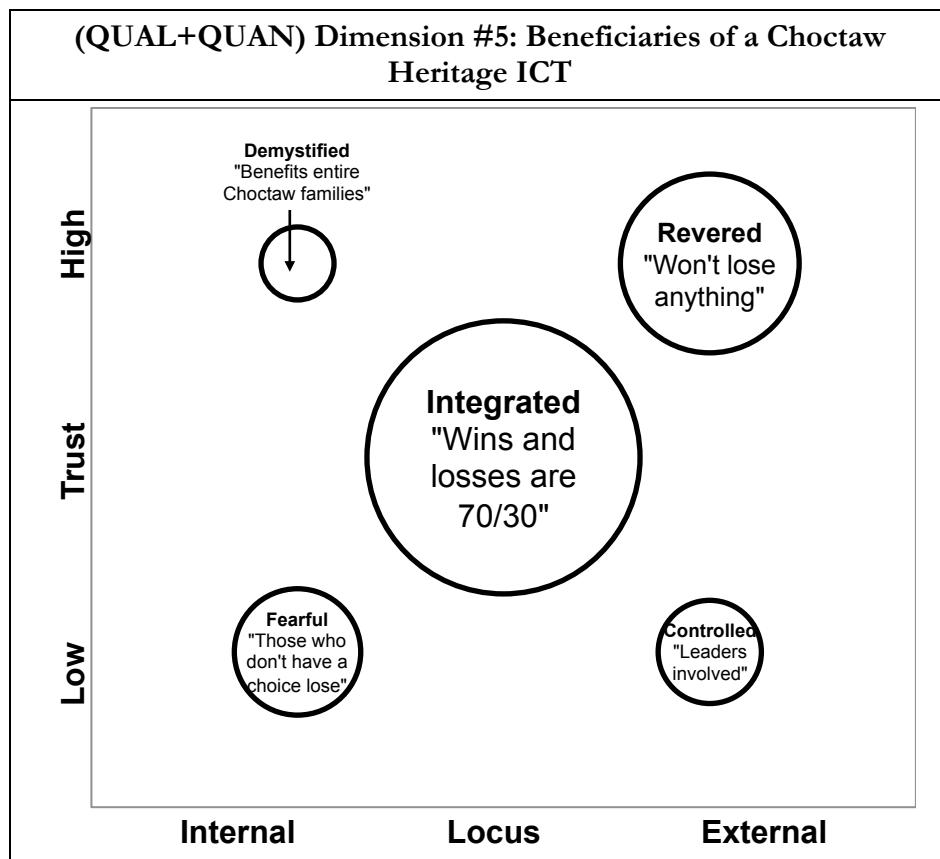


Figure IV-5. Convergence of qualitative and quantitative data of the Choctaw Beneficiaries dimension

Fit of the IT Culture Patterns with the Choctaw

The five descriptive dimensions from the IT Culture theory—Control, Centrality, Skills Value, Justification, and Beneficiaries—were used to map the Choctaw cultural assumptions about ICT across five patterns of assumptions—Fearful, Controlled, Revered, Demystified, and Integrated. Support for all 25 assumption-dimension combinations were evident from the data. Table IV-12 is a replication of Kaarst-Brown's (2005) matrix of dimensions and assumption patterns for CIOs. (See Table II-12 on page 61.) This table summarizes the 25 archetypal patterns and IT Culture dimensions uncovered through analysis of the data.

ARCHETYPE DIMENSION	FEARFUL	CONTROLLED	REVERED	DEMYSTIFIED	INTEGRATED
WHO SHOULD CONTROL ICT DIRECTION	Too risky and scary	Leaders to control it	IT people should control it	Family should control it	Control by families, IT/cultural specialists, and others
CENTRALITY OF IT TO BUSINESS STRATEGY	This is not what ICT should be used for	Depends on which leaders are involved	If not with ICT, then how?	Make sure that family-level culture is not forgotten	Interactive and ICT preservation and sharing are equal but different
VALUE OF IT SKILLS AND KNOWLEDGE	Computers are taking over	Leaders should provide ICT skills training	ICT and cultural skills should be tied together	Families decide what ICT skills they need	ICT specialists and cultural knowledge holders should come together
JUSTIFICATION FOR IT INVESTMENT	What choice do we have?	Tribal leaders should be making ICT investment decisions	Choctaw culture could go viral if an ICT investment is made	Only if it helps the family	Fast and cheap ICT investments are wrong (quality over quantity justifies)
BENEFICIARIES OF IT (WINNERS OR LOSERS)	Those who have no choice in the matter will lose	If tribal leaders are involved, loses are minimized	We won't lose anything	Benefits entire Choctaw families	Winners and losers will be 70/30

Table IV-12. Choctaw IT Culture dimensions that cluster with the five cultural archetypal patterns (adapted from Kaarst-Brown, 2005, p. 293)

The question is how well did the IT Culture theory fit the Choctaw context? One way this was addressed was to analyze the correlation coefficients (Pearson r) found during the quantitative analysis of the data. Cohen (1988) offered guidelines for interpreting the Pearson's r in social science studies. Figure IV-6 graphically represents this interpretation. Using this interpretation of Pearson's r for the purposes of this study, correlation coefficients of 0.33 were the minimum value needed to assert that individual participant responses to the quantitative survey questions correlated with their dominate qualitative coding patterns at a 95% confidence level. Table IV-13 summarizes the correlation coefficients found across all five IT Culture dimensions and shows how strongly the quantitative and qualitative data correlate with one another.

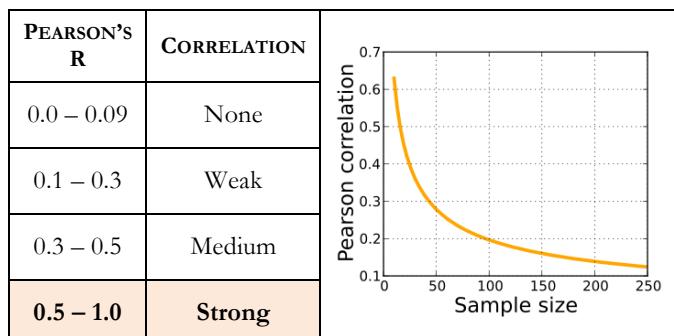


Figure IV-6. Cohen's (1988) interpretation of Pearson's r

DIMENSION	PEARSON'S R	CORRELATION
Control	0.769	Strong
Centrality	0.846	Strong
Skills Value	0.717	Strong
Justification	0.696	Strong
Beneficiaries	0.808	Strong
Overall	0.767	Strong

Table IV-13. Summary of the Pearson's r by IT Culture dimension

The results in the table above provide several insights into the fit of IT Culture theory. First, the Pearson's r correlation coefficients in the second column of Table IV-13 are all well above the 0.33 threshold for statistical significance. This means the participants' survey and interview question responses matched due to correlation than mere chance. Not only that, but they *strongly* correlate according to Cohen (1988). However, there was not perfect correlation. Skills Value and Justification dimensions had the weakest correlation. Interestingly, participant responses to interview questions about Skills Value and Justification were on average 32% shorter in terms of word count than questions on the other three dimensions. That is to say, Choctaw were less verbose on the subjects of Skills Value and Justification. This could have contributed to a slightly weaker correlation.

Another way to assess the fit of IT Culture theory to the Choctaw context was to address construct validity. Construct validity is an assessment of the extent to which what was intended to be measured was actually measured. Construct validity was established for the thesis project by meeting the criteria outlined by Trochim and Donnelly (2007) in the following ways:

- Through the literature and rich descriptions of the data obtained in this study, a semantic net has been cast over the constructs of the Choctaw's heritage preservation and sharing and their underlying assumptions about technology and the operationalization of those constructs (*i.e.*, the role of ICT).

- Direct evidence has been provided to show that Choctaw assumptions about technology look like what they theoretically should look like. That is, the Choctaw assumptions fall naturally into the IT Culture dimensions as predicted by the theory.
- Evidence has been substantiated that the data support the theoretical view, and that both the qualitative interview and quantitative survey data are in agreement by how strong their statistical correlation is.

With an assurance of construct validity, the data were organized in an effort to describe the IT Culture patterns as they emerged among the Choctaw in a way that would be meaningful to the Native American community. The descriptions provided in the following section also demonstrate the effectiveness of the IT Culture theory in understanding the underlying assumptions about technology found in the Choctaw.

Translation of the Choctaw IT Culture Archetypal Patterns

In the presentation of the IT Culture theory, Kaarst-Brown (1995) used archetypal pattern to describe assumptions about IT. Why archetypes? Archetypes can be used to summarize or encapsulate a pattern of behavior that is pervasive and enduring for generations. Archetypes have been used in psychology to understand personality. Carl Jung discovered that recognizable patterns of persistent behavior with certain probable outcomes could be described as archetypes.

The term ‘archetype’ is often misunderstood as meaning certain definite mythological images or motifs. But these are nothing more than conscious representations... The archetype is a tendency to form such representations of a motif—*representations that can vary a great deal in detail without losing their basic pattern* (Jung, 1964, pp. 57–58) [emphasis added].

Archetypal patterns have been identified and used in modern applications. For example, Deal and Kennedy (1982) identified archetypal patterns to categorize organizational culture and the resulting innovative and risk-taking behaviors in the corporate environment.

Archetypes are prevalent in ancient mythology but have been carried over into modern applications and studies of ICT. An attribution of magic as a metaphor of ICT and the resulting reactions by people from archetypal patterns of behavior has been supported in prior literature. For example, Hirschheim and Newman (1991) suggested that the development of new ICT systems is a “magical” process. Likewise, Kaarst-Brown (1995) used the metaphors of wizards and dragons to describe the assumptions about IT she found in two insurance companies.

The possibility was considered that there are metaphors within Choctaw culture useful to describe their IT Culture patterns besides wizards and dragons. While Choctaws might have been able to see the relationship of magic, wizards, and dragons with their own cultural patterns, it was preferred to find symbols that are uniquely identifiable with the Choctaw. As evidenced so far in the presentation of results, the IT Culture theory already fits the context. However, it has specific implications when applied to a Native American tribe. Symbolism has been shown to be a powerful tool to understand organizational culture (Gagliardi, 1992) and Native American culture (Srinivasan, 2007; Vickers, 1998). Thus, an attempt is made with this thesis project to find links to myths and metaphors that would be applicable to the Choctaw people’s assumptions about the role an ICT will play in the preservation and sharing of their culture.

The following analysis is a description of the nature of the IT Culture archetypal patterns found among the Choctaw people. The symbols used were derived from the data taken from Choctaw history and folklore with the help of several cultural experts⁴⁸. The symbols were verified with seventeen (17) respected members of the Tribal community⁴⁹ as appropriate to capture the essence the characteristics of their respective archetypal pattern.

⁴⁸ The researcher invited three individuals from the Choctaw Nation Cultural department to help derive these symbols: 1) an employee of the department (also a member of a prominent Choctaw family), 2) the Tribe’s archeologist (also a Tribal member and holder of a PhD in anthropology), and 3) a Choctaw language teacher (a full-blood Native speaker).

⁴⁹ The 17 respected members of the community were all Choctaw elders from culturally-respected families.

The description of the patterns using these symbols is accompanied by the accounts of some participants. Also discussed is their histories with ICT. This way, one can see not only what the pattern looked like in the contemporary setting but also how it formed and solidified over time.

Sintullo – The Fearful Choctaw IT Culture Archetypal Pattern

In IT Culture theory, a dead dragon represented the Fearful archetypal IT Culture pattern, resulting from the archetypal response to kill the dragon. The dragon symbolized IT and the wizards (or IT specialists) were banished from the kingdom (or organization) (Kaarst-Brown, 1995, p. 397).



Figure IV-7. "Snake Dance," a painting by renowned Choctaw artist, Norma Howard

The Fearful pattern of Choctaw IT Culture is better translated with a symbol from Choctaw folk wisdom and everyday life. A prominent creature in the both the ancestral lands of the Choctaw (present-day Alabama and Mississippi) and their lands in southeast Oklahoma is the rattlesnake. The Choctaw word for the rattlesnake is *sintullo*, pronounced [sin • tul • lō]. Often, Choctaw traditional dress has a diamond design ♦♦♦♦ embroidered at cuffs and hems to signify the creature. The Choctaw Snake Dance is said to honor the rattlesnake. In ancient Choctaw religion, the rattlesnake was respected as much as a deity (Howard & Levine, 1997). The creature is significant to the Choctaw people because of the medicinal properties derived from it. Although the rattlesnake is fearful, it yields something very beneficial. While some might view the Fearful pattern as negative, the Choctaw focus on the positive aspects of fear and caution, because it affords them the time and space to contemplate a wise action. Basically, they see fear as an opportunity to turn a potentially harmful situation into a beneficial one.

The original IT Culture study found attitudes towards ICT to include “cautious use” on the functional side to possibly “avoidance and/or failure to accept IT solutions” on the dysfunctional end (Kaarst-Brown, 1995, p. 410). The Choctaw tend toward the functional aspects of this archetypal pattern. Through their fear of the potential consequences technology might have on their culture, they hoped they could benefit from the extra time it afforded them to contemplate the best course of action.

The *Sintullo* or Fearful cultural pattern among the Choctaw was most prevalent in the younger generations and could be typified by the experience of Kelli, the millennial who went off to college in New York. First, she recalled her history with technology.

I think our family probably got our first computer around 1999 or 2000. It had an Internet connection, dial-up, but it worked. So I grew up, like when I was initially young, and I didn't play on computers. I played games at school, maybe, as a special occasion every Friday or something. But then suddenly the Internet was everything, and the Internet could do so many things. And I adjusted. I adapted to that.⁵⁰

Kelli's concerns over the use of technology developed over time. She was already a technology user long before that attitude became evident. She compared her initial attitude with the generations before her.

Like I never consciously thought, like, oh, I have to learn this; oh, this is scary; oh, this is something else. But my mom and my grandmother still feel that way. My mom, she works with computers every day but she still really doesn't know how to use it.⁵¹

After attending college in New York City, Kelli came back to work and live in the Choctaw Nation again. It was then she began to see the effects of technology and how it might negatively affect the culture of her people.

If I still lived off, and say I wanted to learn the Choctaw language, and I'm watching a Choctaw language class online. It may seem accessible like that, but it's really not. So much in my experience of Choctaw was it being spoken just naturally, to me that really only happens here. And I've been exposed to that and I see that, because that's where I'm from. And it's almost a little bit of anger that someone could video in from the moon and take

⁵⁰ Transcript 15, line 84

⁵¹ Transcript 15, line 88

Choctaw courses. I'm not trying to 'hate' on learning a different language, but if you're not here actively trying and actively speaking to people who already know it and already value it so much, then what is Choctaw language but a novelty?⁵²

The nature of the *Sintullo* attitude about technology being used in the context of her Native culture became evident in Kelli. The more we talked about her culture and technology being interwoven, the more she became concerned that technology and the Internet would compromise the security and sacredness of the Choctaw cultural ways.

Number one, I think technology is scary. I say scary because of security. I don't expect to go to Mars, and for the Martians just to perfectly lay out all of their stories and their secrets and their ways of life. You know? I don't expect that. It's just really disrespectful to think that you can somehow box something like our culture up and make it a pretty little present and present that to whomever, and that's it. It's dehumanizing to think that you can somehow open a book and learn everything you need to know and that makes you qualified to speak or know or talk about that; and I think that's what technology does.⁵³

Kelli also exemplified the *Sintullo* archetypal reaction when considering the use of Choctaw language in an ICT.

When you write an email, for example, there are always issues of the tone of your writing; of expression; how you actually convey your message; if it's totally void of personality or emotion or if it's overly so much. Like I said, I don't speak Choctaw well. My grandmother's generation was the last group that did, but she was the youngest, and her sisters and her brothers spoke it more so that she did. So she never really passed that on to us. But say she did want to—if someone wanted to communicate in Choctaw. I mean, it's an oral language more than anything. I'm saying the person who really speaks Choctaw at home, did they really look at the dictionary? You know what I mean? So say if my mom wanted to text me or she wanted to send me a Facebook message or she wanted to IM me or something, is she going to do that in Choctaw? I don't think the language lends itself to that type of communication, nor does that type of communication lend itself to the Choctaw language.⁵⁴

Such divergent views on use of the Choctaw language and the role of a cultural heritage ICT must be addressed. This will ensure the right blend of English and Choctaw are utilized. The use of their language must meet the expectations of the Tribal community.

⁵² Transcript 15, line 178

⁵³ Transcript 15, line 209

⁵⁴ Transcript 15, line 136

Also, the *Sintullo* were concerned that ICT might dilute the culture. Kelli used the analogy of her grandmother's cooking and how that knowledge could not be adequately passed using an ICT.

I feel like using technology to share our culture might brand how the Choctaw Nation has done things in a way that says anyone can do it. And that's absolutely not true. There's nothing about that that's true. Could I learn the mechanics of my Grandma's recipe through a YouTube video? Sure. But to truly learn her recipe, how she did it, I need to be there to smell it, taste it, and feel it being done.⁵⁵

When dealing with a rattlesnake, one does not need to get in a hurry. The *Sintullo* Choctaws believe it is important to protect what is sacred to them. Patience will be required, and if the Choctaw heed the *Sintullo* warnings, they will benefit from it. The *Sintullo* pattern of attitude and beliefs about technology among the Choctaw people will likely play an important role in shaping the heritage ICT.

Luksi – The Controlled Choctaw IT Culture Archetypal Pattern

The IT Culture theory viewed the Controlled archetypal pattern as the caged dragon (IT) and poor wizards (IT specialists) barricaded in a tower. In terms of IT Culture, the pattern reflects absolute control of IT by management and leadership within an organization (Kaarst-Brown, 1995, p. 413).



Figure IV-8. Turtle Dance at the *Owa-Chitto* Festival near Broken Bow, Oklahoma, 1974

The Controlled Choctaw IT Culture pattern is similar but different. Like the rattlesnake, another reptile significant to the Choctaw people is the turtle, which is called *luksi* (pronounced [luck • see]) in Choctaw. Turtles are admired for their tenacity and long life and are said to have taught

⁵⁵ Transcript 15, line 128

the Choctaw people about persistence, patience, protection, self-sufficiency and how to live a long life. The Choctaw Turtle Dance is known for its controlled movements with men and women in interlocked arms (Howard & Levine, 1997, p. 57). One of the most prominent of the Tribe's chiefs was Peter Pitchlynn, who had the Choctaw name *Hachotakni* (pronounced [Hat • choo • tuck • nee] and means “snapping turtle”) (Hudson, 1932). Chief Pitchlynn was very much concerned with the survival of his people. As Chief after the U.S. Civil War—only 34 years after the first Choctaw removals to Oklahoma—he had the difficult task of negotiating the needs of his people before Congress. The English writer Charles Dickens wrote about Pitchlynn,

When I told him of that chamber in the British Museum wherein are preserved household memorials of a race that ceased to be, thousands of years ago, he was very attentive, and it was not hard to see that he had a reference in his mind to the gradual fading away of his own people. (Foreman, 1929, p. 173)

Pitchlynn, like many Choctaw, recognized that strong leadership was required for the Tribe to grow and prosper from a people whose numbers had dwindled below 20,000 in Pitchlynn’s day to the over 200,000 Choctaws to-date. With the tenacious leadership demonstrated by Pitchlynn, it is easy to see how he earned the name “snapping turtle.”

Just as the Controlled archetype of the IT Culture in Kaarst-Brown’s insurance companies had a functional aspect that “business vision of corporate needs guide IT development” (1995, p. 434), the *Luksi* Choctaw pattern of assumptions could provide guidance for an ICT developed to meet the Tribal leaders vision for its heritage preservation and sharing. Many of the participants who held the *Luksi* pattern of assumption about technology were concerned with their leaders protecting their cultural heritage, much like the tortoise’s shell taught the Choctaw about protection.

On the other side, a dysfunctional aspect of an IT Culture Controlled pattern “may constrain effective integration of IT,” due to a lack in leadership’s knowledge about technology (Kaarst-Brown, 1995, p. 434). This could be a concern for the Choctaws as well. Over half of the Choctaws

who held the *Luksi* pattern also indicated having limited knowledge of computer technology, but expected that their leaders would be able to give strong guidance.

Gene, the retired manual laborer, identified the source of his *Luksi* pattern through the formation of his identity as a Choctaw. His concern, which was shared by several other Choctaws who held the *Luksi* pattern, was that without watchful control by Tribal leaders, a cultural heritage ICT will get out of hand and misrepresent the sacred heritage of the Tribe. Most all *Luksi* participants agreed that Tribal and cultural leaders should be exercising control, and all agreed control was needed. Gene gave a good example of how the *Luksi* archetypal pattern emerged through his own life experience and encounters with ICT.

I grew up like a white kid. I knew I had Indian in me, but the Indians didn't do anything back then. I mean, I grew up shooting Indians with a play gun, because that's what the movies were all about. That's what TV was all about, the terrible Indian. I went to school with a lot of Indians, but I didn't consider myself an Indian until later on in life I got back in with the Choctaw here and found out who my great-grandpa was, and things like that sunk in since then. So all this stuff—it's good and bad. You can put anything you want to on the Internet, whether it's truth or non-truth. I mean, it's good and bad. It's getting worse. I'm afraid our kids will grow up thinking something about being Indian that's not true—like I did—because you know, they saw it on the computer or something.⁵⁶

The *Luksi* pattern will undoubtedly play an important part in deciding the role of the Choctaw cultural heritage ICT. Choctaws have avoided assimilation by staying true to who they were. The *Luksi* assumptions will help them avoid going down the wrong road by countering the effects of the non-Choctaw ideals embedded in ICT (Dyson, 2004). One participant saw technology control related to self-determination and Tribal sovereignty, which are functions of Tribal leadership.

Maybe I'm a little more hopeful that self-determination can, in the broader scheme of things, be pushed along by technology, in some ways. Buy all the technology that you want, but until a sovereign nation owns Microsoft or a similar company, it's never really going to be fully genuine, pure, or authentic.⁵⁷

⁵⁶ Transcript 20, line 57

⁵⁷ Transcript 25, line 94

Another theme that turned up several times from the *Luksi* pattern (mentioned by 11% of participants) was the issue of a cultural heritage ICT and whether it will serve to bring Choctaw families closer together or create space for families to further diffuse. Lorene, an older lady who still worked and recently became the matriarch of her family, expressed the importance of family togetherness in her interview,

My real opinion is that the biggest problem that we have in the Tribe and the biggest problem we have with the younger generations or whatever is we lost the family. We do not have the family that we had, even my generation. We did things together. We helped each other. We worked together. But how many families do you know that do that? And it's simply because so many of your families now, well, are broken. And it's not just one family here or one family there. We know that in a lot of areas it's three out of four. Can technology help? Can it bring us together? I don't think it can. If it could, that would be great. We need to be paying more attention to bringing our families together than the latest and greatest, new fangled technology.⁵⁸

This factor returns to the phenomenon of grandma's lap. The next generation of Choctaws may be learning important Tribal knowledge from an Internet device instead of in grandma's lap. What will that mean to Choctaw families and their consistent cultural belief that family togetherness is of utmost importance? The *Luksi* pattern saw technology as needing control in order to be effective at bringing families together. This consideration must be dealt with as well in terms of how an ICT will preserve and share Choctaw culture.

Fvla – The Revered Choctaw IT Culture Archetypal Pattern

IT Culture theory depicts the Revered pattern as the dragon lying on a pile of gold, with a wizard adorned in jewels and rich cloth, showing his or her high status in the kingdom. This symbolism shows the belief that not only is the magic of IT good, but plays an irreplaceable role in the organization (Kaarst-Brown, 1995, p. 435).

The Revered Choctaw IT Culture pattern is also rooted in the doling out of plenty for those who embrace ICT as a solution for cultural heritage preservation and sharing. There is a legend in

⁵⁸ Transcript 19, line 7

Choctaw folklore about a dream a former Choctaw Chief's son, Musholatubih (pronounced [Mush • ə • la • tub • ee]), had long ago. In his dream, he is said to be hunting a long time and unable to find meat to bring back to his starving people. At a point of exhaustion and giving up, he spotted a *fula* (pronounced [Fə • ɿə]), or crow, flying over him. He killed it and roasted it. Before he could eat it, a woman in despair interrupted him. The woman held out her hands and said, "I perish from hunger. Please give me food." Musholatubih gave her the crow, and forgot his hunger as he watched her eat. As he looked at her, she grew more and more beautiful and was like no one among he'd ever seen among his people. When she finished eating, she said, "You have saved my life, and I shall repay you. Come to this place one year from now and you will find your reward." Pearls fell from her throat to her feet.

On the day he was to return, he neared the place where the beautiful woman had appeared. "It must have been only a dream after all," uttered the chief's son when he could not find her. He had not searched long until he came upon a plant that he had never seen before. It reached above his head and had a tassel like a crown and broad green leaves. As he looked at it, he knew it was a gift from Great Spirit. Upon the stalk, he found the same pearls when he pulled back the covering and saw the long rows of grain full of juice. "We shall call it *tonchi* [tōn • chee]," declared the chief's son. When the *tonchi*, which was corn, was roasted and he tasted it, he knew the Choctaw had never eaten food this good. (N. G. Martin, 2012)

In one of Kaarst-Brown's insurance companies, the Revered IT Culture had functional aspects of "support for IT championship behavior" and "IT innovation" (Kaarst-Brown, 1995, p. 450). In a similar way, the Choctaw legend of the *fula*, or crow, showed how "championship behavior" led to the innovation of corn, which sustained the Choctaw as they transitioned to an agrarian society. Note also, however, the sacrifice of the crow was necessary to move forward. In Kaarst-Brown's study, the insurance company's investment in its mainframe technology and other

pet IT projects risked decoupling its IT strategy from its business' needs. In the same way, if Musholatubih had greedily kept the crow for himself, he would have risked not meeting the needs of his people into the future. Kaarst-Brown saw this same sacrifice in the insurance company brewing as it was being forced to deprecate its mainframe technology in favor of the personal computer. For these reasons, the *Fvla* was chosen to represent the Revered cultural pattern found among the Choctaw.

Karen exemplified the *Fvla* pattern of attitude that revered technology and saw it as imperative to the success of a preservation effort. According to the IT Culture theory, a dysfunctional aspect of the Revered IT Culture is that an “IT solution is perceived for all problems” (Kaarst-Brown, 1995, p. 450). Karen offered the following evaluation of a technology-based solution for heritage preservation:

As long as you know that your culture is being shared and as long as it's accurate, then there wouldn't be a problem.⁵⁹

This statement was interesting. As a professional in the ICT field with over 15 years experience, I could not think of a single technology implementation where there were not at least some technical problems. Her evaluation of the cultural ICT innovation seemed unusually favorable, putting more onus of whether or not there were issues on cultural specialists getting the culture accurate, rather than technology specialists getting the system right.

Many participants expressed urgency for preserving and sharing the culture before the eldest generation passed, and many saw technology as the *tonchi* to sustain their heritage into the future. On the same token, however, the *Fvla* pattern was quantitatively the least pervasive found among all the participants.

⁵⁹ Transcript 2, line 71

Shukvta – The Demystified Choctaw IT Culture Archetypal Pattern

The Demystified archetypal pattern, according to IT Culture theory, is depicted as small, tame dragons on leashes being led by business wizards. The business IT “experts” have acquired their own wizard cap and enough skill to be able to seemingly control the smaller IT dragons (Kaarst-Brown, 1995, p. 451).

In a Revered IT Culture the wizards have higher status. Technology is seen as toys or playthings. In a similar spirit, the Demystified Choctaw IT Culture pattern was derived to mirror a similar “childish” view of ICT. A popular children’s story among the Choctaw is the explanation of why the opossum has no hair on its tail. In the story, a raccoon (Coon) and an opossum (Possum) met one day and talked. As they were talking, Possum could not keep his eyes off Coon’s beautiful tail. After a lot of small talk, Possum finally asked Coon, “Your beautiful tail, Coon! How did you get it?”

Coon replied, “Took hickory bark, wrapped it around tail then singed it. That is way I colors.” They separated each going his own way. Possum kept thinking how he could have a tail as beautiful as Coon’s. So he took the bark from a hickory tree and wrapped it around his tail. He built a fire to singe his tail and color it the same as Coon’s, but instead, he accidentally burned all the hair off. According the Choctaw legend, opossums have had no hair on tails ever since. (Hudson, 2012)

The story of Possum’s tail resonates with the Demystified archetypal pattern from Kaarst-Brown’s IT Culture theory. In her study, she found a functional aspect of the Demystified pattern to be innovation applied at the business unit level; however, a dysfunctional aspect was an increased risk with the increased end user computing found in this pattern (Kaarst-Brown, 1995, p. 465). In the same way, Possum applied innovation at the individual level with less than desirable results. The

Choctaw word for an opossum is *shukvta* [shuck • ətə]⁶⁰, and it was chosen to represent the Demystified cultural pattern of assumptions about technology among the Choctaw.

Bob, a middle aged insurance salesman, exhibited the *Shukvta* pattern concerning ICT skills and knowledge. Bob first encountered computers when he began his professional career. He confessed to being overwhelmed at first, because he had never been exposed to technology in school or growing up. From this experience, he gave a rather impassioned plea for children to be unabashedly exposed to technology with no anticipated negative effects, stating,

We need kids started early. That's the way it needs to be done in every school. And give these students the background. And don't knock education. Don't knock the computer stuff. Don't knock advancement. Do what's necessary to be on top. We want smart kids, don't we? I think it's going to be used everywhere, and they're advancing to more now, and you don't even have to have hookups and stuff to them. Even that game stuff is good for them.⁶¹

The *Shukvta* pattern revealed another popular element considering the role of ICT in cultural heritage—the Choctaw language (23% of participants mentioned it.) Most of these participants saw the ICT as having a positive impact on the persistence and learning of the Choctaw language. Several younger Choctaws saw technology as a useful tool for learning and using the Choctaw language in everyday life.

The *Shukvta* pattern was most prevalent in the Centrality dimension, where more participants thought the preservation effort was highly important to the individual families than anyone else.

Opa – The Integrated Choctaw IT Culture Archetypal Pattern

According to IT Culture theory, the Integrated archetypal pattern is illustrated by business people, the dragon, and the wizard walking arm-in-arm and working together to meet organizational

⁶⁰ The Greek lowercase upsilon *v* is often used to represent a special vowel in the Choctaw language, which makes a sound similar to the English schwa /ə/.

⁶¹ Transcript 21, line 97

objectives. In this way, ICT is given equal value as the skills brought by both wizards and business people are seen with equality (Kaarst-Brown, 1995, p. 466).

The Integrated Choctaw IT Culture pattern was the most prevalent overall, and the selection of a symbol emerged from the data collected during the study. One elderly woman was telling a story about the death of her grandfather.

One night, my grandfather was sitting in his favorite rocking chair on the porch of their home. As he sat there, they said he saw an owl. He immediately began to chant a death chant, and then he was quiet and was gone. It was the owl. He thought that was the reason it was his day to go.⁶²

Later, I asked her the significance of the owl to Choctaws, and she said it represented a harbinger or omen—sometimes good, and sometimes not.

Well, an owl is a harbinger that something is going to happen. That was their belief—an omen that something was going to happen that wasn't necessarily going to be favorable. And my grandfather said he saw the owl come up. And my mother said he said, 'It's time. Today I'm going to my other life.' Then he started his chant. And then when he was quiet, they knew he was gone.⁶³

Several other Choctaws told stories of owls and their signifying an impending change on the horizon. The Choctaw word for the owl is *oþa* [ó • pa]. The *oþa* taught wisdom, because as a people, the Choctaw have endured many changes over the centuries—some favorable, some not. The wisdom of the *oþa* instructed the Choctaw that remaining true to themselves was the only way to survive and adapt to the world as it changed around them.

The Integrated IT Culture as described by Kaarst-Brown perpetuated “negotiated approaches which balances available technology with business needs or objectives” (Kaarst-Brown, 1995, p. 580). However, the Integrated pattern is not without its dysfunctional aspects as well, including the interference of rituals with progress and expectations not matching with the technology or the skill of its users. For the Choctaw, the *Oþa* pattern demonstrated the same attitude

⁶² Transcript 14, line 40

⁶³ Transcript 14, line 195

of balance between technology and cultural preservation needs, but also there were aspects of the culture that may impede technological progress or has expectations that are too lofty for the technology to fulfill.

An instance of the *Opa* pattern was found with Jeff, the mid-twenties professional. When asked about how important it is for tribal members to have ICT skills, he reflected,

I want people to be true to themselves. And it's one of those things that I don't want to force someone that doesn't really want to use a computer to have to learn how to share these. You know, if an older person doesn't want to use a computer but they know how to use a CD player, we make a CD. Or if they just want it and they send us a letter about it, we can just send them a story written down. I like trying to adapt to the person, because there's a whole lot of people in tons of skill ranges. Think about it. It's pretty drastic. And I don't want to force older Choctaws, people that have never used a computer before, to have to learn how to use this to be able to be a part of this.⁶⁴

An important characteristic of the Choctaw *Opa* pattern was a belief that each family should work with cultural specialists to choose how they preserve and how they share. In this way, family rituals and wishes could impede technological progress. The need to preserve and share their culture via technology did not override the family's or individual's prerogative to do so.

Another feature of the *Opa* pattern was the belief that technology, despite all its benefits, was not adequate to supplant the interactiveness of real-life Choctaw culture. This belief embodied the sentiment of Jojola, who criticized Native technology use when he said, "sometimes it pays to experience real life instead of using technologies to approximate it" (Jojola, 1998, p. 16). There is something very real and organic about Choctaw culture and life. This can never be replicated by technology in the minds of the people who hold the *Opa* pattern of attitude and belief.

One of the most insightful interviews was a matriarch, full-blood Choctaw in her mid-fifties. She only had an eighth-grade education but emerged on the Native American art scene as a very successful and award-winning artist. What was interesting about this woman—whom I will refer to as Joyce—was she was adamantly opposed to technology use for herself. However, it would have

⁶⁴ Transcript 10, line 47

been a mistake to assume she fell into the *Sintullo* archetypal pattern of assumptions, as most Choctaw who held that pattern were daily users of ICT. Instead, she recounted how she has been exposed to technology, even pressured by members of her own family to use it, and still rejected it. Here was why:

I do my art business by going to shows. My art is not on email or eBay or whatever you call it. Everybody, my sisters say, ‘you need to get on; you could make money.’ I tell them that I’m not in it for that reason. I want to be there to meet with the person because my art is my children and I want them to go to a good home. And you can’t do that online. I know I could be in different directions more than what I am. But I’m fine with where I am. I’m not on all that stuff. I try to set example for the old Choctaws.⁶⁵

It was important not to make the assumption that all nonusers are automatically ascribed the *Sintullo* pattern or that all people fitting the *Opa* pattern are, by default, users and adopters of technology.

The interviewee also gave a deeper view of the *Opa* notion of ICT as an approximation of real life that cannot replicate the Choctaw cultural experience.

In the old days, they didn’t have no cameras or microphones, all of that. It was just passed down. But with this day, we have recording. It’s something that they can hear someday without someone saying it—you know what I’m saying? Like let’s just say your mother was a good quilter and someone said, ‘Oh, your mother was a good quilter,’ but you never seen it—you never touched it. And then let’s just say that someone had it, and then you grabbed it and touched it with your hands and felt it—seen it with your own eyes. That’s the difference. They can hear it with the tape, where in the old days it was just words. It’s actual voice. That’s what’s important.⁶⁶

Joyce exhibited another important attitude of the *Opa* pattern that saw an incompatibility of ICT and Choctaw culture, *i.e.*, saw technology as temporary and quick to change while Choctaw culture as persistent and slow to change.

Well, naturally our connection to each other probably will be lost in the future because of all this technology. But when everything is so much computerized and all that, all these things that we did with them, it will come back to them. Because, I mean, were talking... from ‘40 to 2012, that’s what, 70 years? Okay. Within that time, it’s changed a lot. But look how long us Indians lived here—10,000 years ago. I mean, what’s 40 years or 60 years? We’re not

⁶⁵ Transcript 7, lines 139-141

⁶⁶ Transcript 7, lines 107-111

going to change that much. I mean, I know the world's changing and all this technology and everybody wants the best smartphone and all that. But our ancestors seen it all and we hadn't changed all that years. Technology changes, but the Indian heart and their mind is different. We're different. I mean, it'll change, but 60, 70 years ain't going to change an Indian that quick. Because we're like—we're laid back and kind of let things go ahead of us. It'll come around later. I'm not really worried. I'm just a little concerned. But I know that with the Choctaw history, what we went through, they'll come around.⁶⁷

Also made evident by the *Opa* pattern was a prominent theme of concern over what should and what should not be shared in a cultural heritage ICT, *i.e.*, issues of content strategy and the security of sensitive or sacred tribal knowledge. Forty-two percent (42%) of participants brought up at least one content or security issue during the interviews. One participant, whose identity I will not reveal, asked me to turn the recorder off to give examples of stories within her own family that she would not want shared, or even preserved, in a Choctaw cultural heritage ICT. She was afraid the stories would bring embarrassment or shame to her family. She emphatically asserted those types of stories should be avoided.

Joyce summed up this important implication very well by saying,

There's a lot of stories that shouldn't be shared. But those are the ones I don't know because they didn't tell me and it wasn't supposed to be said. And it was their wishes, and I abide by them. It's just sometimes things should be left [pause] just, it's good to have something sacred, special left alone. And it is what it is.⁶⁸

The climax of the interview came towards the end, when Joyce was asked if she had anything else she wanted to say on the subject. She revealed the true source to her *Opa* pattern of assumptions about technology—her identity as a Choctaw.

We was poor and everything. All these other girls got pretty baby dolls. And I remember going to school and everybody said, 'You bring your dolls to school,' and I had a little cute baby doll. And all the girls brought their dolls, and they had little doll clothes. I brought my doll, I didn't have doll clothes. Oh, the kids made fun of me! And it hurt my feelings, and I put my doll in my desk because it didn't have no clothes.

And I felt sorry for that doll in there because at home I loved her, but in public, I didn't. And I was thinking, listen, why am I doing this? Because that doll doesn't have no right to

⁶⁷ Transcript 7, lines 93-101

⁶⁸ Transcript 7, line 125

be in that drawer. It deserved to be shown. But I was shaming for her. And my mother told me, ‘Look in the mirror; who do you see?’ Because I wanted—sometime I wanted to be white—I mean, not as a *white*, but I wanted to be fit in. She said, ‘Look in the mirror. Do you see a little Indian girl or a white girl?’ I said, ‘I see an Indian girl.’ She said, ‘Because if you try to be white, it’s unhealthy.’ And it’s same the other way. If you’re white and try to be Indian, it’s unhealthy. You are who you are. And I always remember that, is to be who I am.

But sometimes people put you in a place where you shouldn’t do things, and I shouldn’t have hid my doll in there. I know my doll had feelings. But at home she was my little baby doll—I loved her! But when I went there, when people were shaming for her, I was shaming for her. And I shouldn’t have. But I hid her in that drawer, and at the end of school I brought her home and I put her up. But later on I started playing with her because she’s my doll. But that’s just a story that my mother would tell me. And I feel bad that I hid her.

I don’t know where that doll is now.⁶⁹

Amidst a stream of tears and laughter from both the researcher and the interviewee, she continued and brought this important thought back around to an assumption about technology.

But like I said, it was example. It was example of the changing of people’s reaction of who you are, you know? It could be something else. It could be something that you give your heart out and somebody don’t appreciate it. But at the end, the ones that stay true to themselves are always the winners. You can look throughout history. I’m not talking about rich people—I mean, them, too, that makes it in the world or somebody that nobody don’t know or stay at home and do their thing. But it’s the one that’s in their own mind and thoughts. In this day and time, *that’s kind of gone because people are texting*. They’re having other people’s idea and they’re losing their own, or not even having their own. [emphasis added]

So that’s why I don’t have a cellular phone. I do have a home phone. I don’t have a computer. I’m not in the Internet. I don’t even have that at home. I don’t want my kids on it. Well, later on they may have to in their business. But right now, this is my world, and I’m going to keep my thing. They live next to me, by the way. When I have my home, I do my things my way. When they’re gone, I hope they won’t, but I can’t tell them what to do. It’s just like that.⁷⁰

Joyce revealed that the most important thing to consider with Choctaw cultural heritage is remaining true to who the Choctaw are. Technology can be allowed to play a role, but to the *Opa*, it is important that Choctaw never lose sight of their identity or that they use the cultural knowledge discovered through ICT use to replace their own. The Choctaw sense of who they are should not come from a computer screen, but from their family and real life experience as a Choctaw person.

⁶⁹ Transcript 7, lines 173-183

⁷⁰ Transcript 7, lines 187-191

The *Opa* pattern of assumptions about technology was the most prevalent in this thesis study. Seemingly, it is the most important archetype in consideration of the role of ICT in Choctaw cultural heritage preservation and sharing.

IT Culture Patterns Across Choctaw Families and Multiple Generations

In addition to the translation of the IT Culture patterns for the Choctaw, the patterns also emerged among and between generational groups and Choctaw families. The following analysis and interpretation of these patterns is provided below.

Generational Patterns of IT Culture

As additional analysis, the responses to the survey questions were disaggregated by generation within the Choctaw families. The generations were constituted of no predetermined age ranges but instead were categorized *by their relationship to the elder* as depicted in Table IV-14.

GENERATION	RELATIONSHIP	AGE RANGES	% OF SAMPLE
Elder	Eldest in the Family 	50-85	19%
Second	Elder's Adult Child 	30-69	42%
Third (or Fourth)	Elder's Adult Grandchild (or Great-grandchild) 	20-35	39%

Table IV-14. Generations of Choctaws considered in this study

Elder – This group comprised those who were part of the eldest living generation within their family, *i.e.*, both of the participant's parents had passed away leaving them as elder (or even matriarch, if the participant was female.) These participants constituted 19% of the sample and were as young as in their 50's to one who was in her 80's.

Second Generation – This group was considered the participants whose elder Choctaw parent(s) were still living at the time of the interview. These individuals made up 42% of the sample and were of ages ranging from their 30's to their 60's.

Third or Fourth Generation – About 39% of the sample were two or three generations from their still living Choctaw elders. Almost all of these participants were in their 20's (and thus considered "millennial") with one individual in his 30's.

During this analysis, patterns of the Choctaw cultural archetypes developed. The Integrated pattern was most prominent in all three generational cohorts. However, the elder group exhibited the highest affinity for the *Opa* (Integrated) pattern. Over half of all their responses pointed towards *Opa* assumptions about technology. This was evident by their balanced responses, such as acknowledging the capability of ICT while recognizing its limitations or imploring that the younger generation need to learn ICT skills but hoping that those pursuits don't trump learning their Native culture.

The elder generation also tended towards the *Shukvta* (Demystified) pattern in several instances. Clarita, an elderly woman who grew up in the Choctaw Nation but later moved in the Pacific Northwest, exemplified this pattern by stating,

We do own a computer. I don't use it, but my husband does. He reads all my emails to me. That's so terrible. I don't even try. That's a real big fault of mine. I know it is. I just don't care to learn, I guess, because it seems so trivial. I don't have time to play around with it anyway.⁷¹

Several other elders echoed similar sentiments about technology, even those who used it on a regular basis. Elderly participants joked about social media and adolescents texting one another to communicate.

The Elder generation strongly exhibited the *Opa* (Integrated) pattern with a tendency towards *Shukvta* (Demystified) as well. Embedded in this pattern is the wisdom and "big picture" thinking of the Choctaw elders. The Choctaw elders have enjoyed long lives and rich experiences in a world with and without computer technology. They know they can survive without ICT, and thus they gave it less consideration in the grand scheme of things. They see Choctaw culture as

⁷¹ Transcript 14, line 78

persevering and thriving into the future as it always has. Joyce said in regards to the Information Age, “What’s 60 or 70 years to the Choctaw? It will all come around again.”⁷²

The second generational participants exhibited attitudes of the *Luksi* (Controlled) pattern almost twice as often as the other two groups. In comparison to the elder generation, who were more jocular about their grandchildren texting and communicating so much via ICT, the second generation took the issue more seriously. Many lamented that it was a problem or commented that such behavior should be lessened and controlled. This group is the least *Opa* (Integrated) of the other two cohorts and had an increasing presence of the *Sintullo* (Fearful) culture over the elders.

A reason for the prevalence of these patterns in the second generation (adult children of their elders) is that they reached adulthood while computer technology was just becoming prevalent in society. This was before the Internet and Information Age really took off. This generation also possesses enough life experience and wisdom to know things are not always as good as people make them out to be. They have likely encountered a number of “snake oil salesmen” in their days, and are less likely to take something at face value, especially something as mysterious and magical as ICT. Also, this generation knows how technology has changed the way their children and grandchildren have grown up. This brave new world seems somewhat scary, and a way to mitigate the risks technology will likely introduce to the culture is to control it.

The younger generations tend towards *Sintullo* (Fearful) patterns more than their older generational counterparts. Although this group is *Opa* (Integrated) by and large, a *Sintullo* presence is unmistakable. Some expressed fear that elder members of the Tribe would be left out of cultural preservation and sharing via ICT. Other expressed fear that an ICT would lessen the intimacy of the cultural experience, like Kelli who was afraid someone would claim to understand Choctaw culture

⁷² Transcript 7, line 103

“just by watching a few YouTube videos.”⁷³ The younger set also tends to hold less *Shukvta* (Demystified) and more *Fvla* (Revered) views towards ICT than the second generation.

The third and fourth generations (the adult grandchildren and great-grandchildren of their elders) know the effects and impacts of technology on others of their own age. They have seen the rampant and unbridled acceptance and use of ICT by their generational cohort in the mainstream culture. However, their identity as Choctaws and desire to protect and promulgate their culture heritage gives them pause. Before rushing forward into cultural heritage preservation and sharing using ICT, they want to be careful not to take away from the sacredness and authenticity of the culture for the sake of the speed and sharing capabilities that technology offers. They have been brought up in a time when “it is cool to be Choctaw”⁷⁴, and their treasured cultural identity should not be sacrificed for the “golden cow” (Deal & Kennedy, 1982, p. 55) of technology.

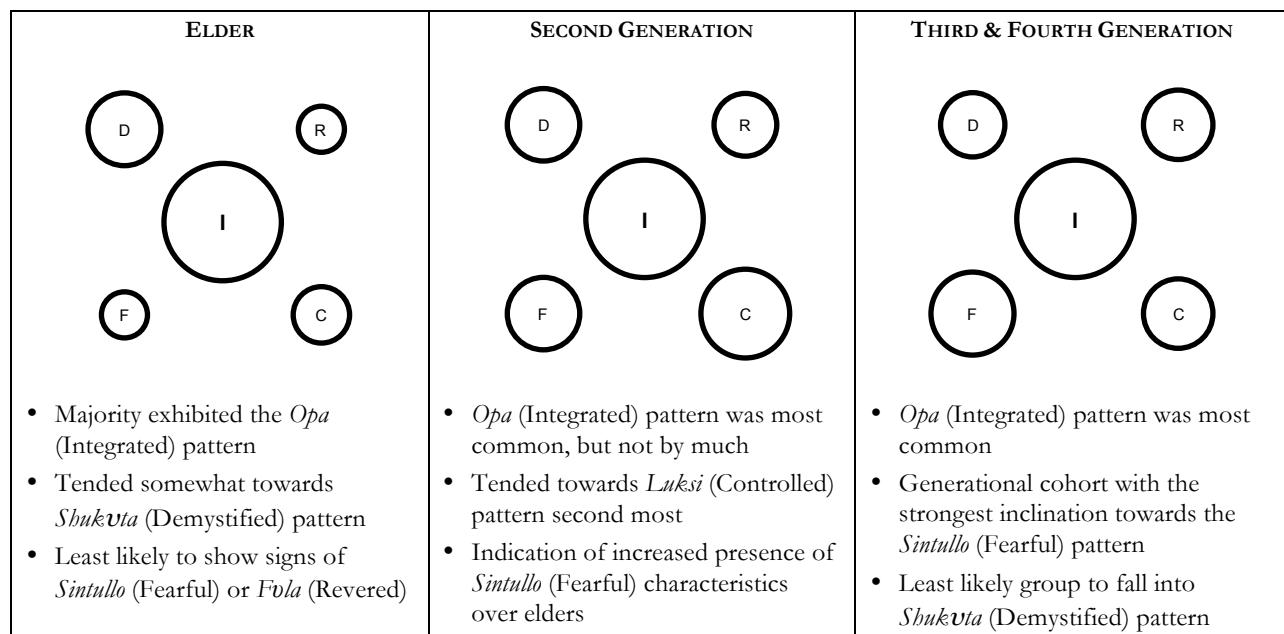


Figure IV-9. Quantitative response frequency by generation

⁷³ Transcript 15, line 223

⁷⁴ Transcript 25, line 81

Figure IV-9 compares the responses to the survey questions by participants in the three generational categories, where D is *Shukvta* (Demystified), R is *Fula* (Revered), F is *Sintullo* (Fearful), C is *Luksi* (Controlled), and I is *Opa* (Integrated).

Familial Patterns of IT Culture

Another level of analysis is to consider the persistence of IT Culture patterns within Choctaw families. Although the sampling strategy randomly selected individuals from multigenerational families, the number of families in the participant pool (over 50) limited the number of co-occurrences within individual families. Unfortunately, this made any implications or conclusions drawn from this unit of analysis weaker than hoped for. However, there are some interesting examples worth mentioning of IT Culture patterns that emerged in the data.

One family is nontraditional in the aspect that the grandmother, the matriarch of the family, had raised her two granddaughters. These young women are in college and have been exposed to technology at home and school. The grandmother described one of her granddaughters as “doing it with her phone, just texting in Choctaw.”⁷⁵ The granddaughter talked about it as a game and gave the example of making an e-card in Choctaw for their non-Choctaw grandfather’s birthday and having “to translate it for him.”⁷⁶ As a whole, the family tends strongly towards the *Shukvta* (Demystified) pattern of assumptions and are giddy with the thought of Choctaw-related content going “viral.”⁷⁷

This nontraditional nature of a Choctaw family illuminates interesting effects in the formation and pervasiveness of their IT Culture patterns. Breaking from the traditional matriarch role, the elder grandparent in this case seems to follow the lead of her adult grandchildren in regards to technology acceptance and use. She expressed her happiness that they had found ways to express

⁷⁵ Transcript 6, line 4

⁷⁶ Transcript 6, line 7

⁷⁷ Transcript 22, line 31

their culture using technology. Because of this, her fears of introducing an ICT into the heritage preservation and sharing effort eased. Thus, she seem to have a similar *Shukuta* pattern of assumptions as her granddaughters.

The second example of a Choctaw multi-generational family is one that is dispersed. In this family, each person interviewed lives away from one another. Within the family, there is a daughter off at college, her mother who lives inside the Tribal area, and a grandmother who lives outside the Choctaw Nation. In this case, the family's patterns are more dispersed. The grandmother exhibits an *Opa* (Integrated) pattern while the mother is *Luksi* (Controlled), and the daughter is *Fvla* (Revered). The daughter spoke of her grandmother being on Facebook with amusement while her mother scoffed at the notion.

The dispersed nature of the family helps explain the divergent patterns found in the members of the family. Since the family is geographically separated, there are fewer opportunities for conflict over differing assumptions about technology, and thus the patterns were free to develop and embed themselves within the individuals on their own.

A third family was selected who described themselves as tight-knit—all of them living within a few miles of one another. After their individual interviews, I had the opportunity to speak with them as a group informally, and their comments reinforced the *Luksi* (Controlled) archetypal pattern that emerged during their interviews. They all discussed the problems of too much technology and exhibited attitudes similar to other Choctaws in the *Luksi* pattern of beliefs, talking about how technology has contributed to “the loss of family” as “the biggest problem we have today.”⁷⁸

In this instance the proximity and tightness of the family seems to align and reinforce their cultural assumptions about technology. Conflicts over differing assumptions have more opportunities to be resolved and most often defer to the elder’s wishes. In this case, the matriarch’s

⁷⁸ Transcript 5, line 34

Luksi (Controlled) assumptions are consistently present in the rest of the family. This would also explain the complete absence of the *Shukvta* (Demystified) or *Fvla* (Revered) patterns, as there would be limited opportunity for those patterns to develop independently in such a tight-knit family.

Figure IV-10 summarizes the families described here, where D is *Shukvta* (Demystified), R is *Fvla* (Revered), F is *Sintullo* (Fearful), C is *Luksi* (Controlled), and I is *Opa* (Integrated).

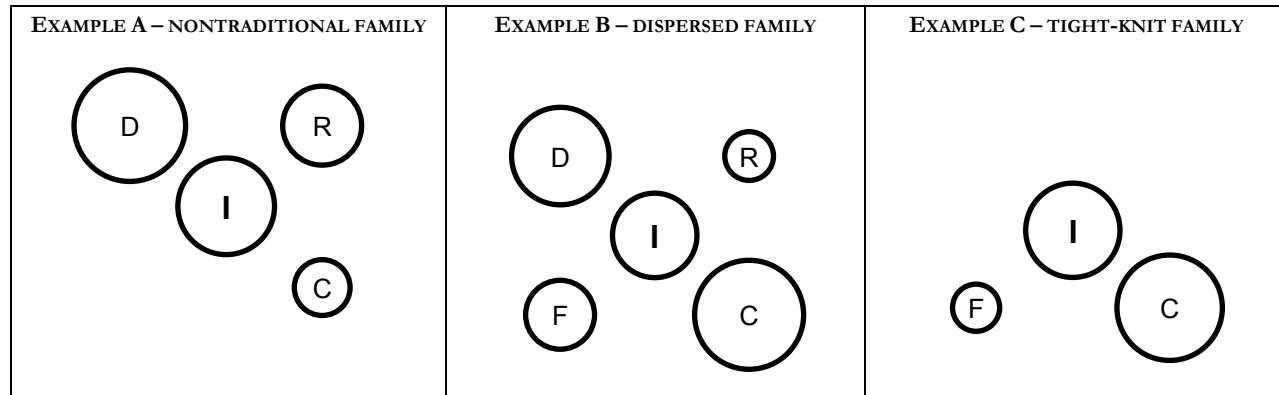


Figure IV-10. Quantitative response frequency of three example families

Reliability, Validity, and Trustworthiness

Before moving on to a discussion of the insights gained from this study, it is important to address the reliability, validity, and trustworthiness of the conduct and results of this research project. An assessment was derived from Miles and Huberman (1994, pp. 278–279) and guided a query into the reliability, validity, and trustworthiness of this study.

First, it should be noted that I painted as clear a picture as I could of the background and context of this research in Chapters I and II. The methods and procedures of this study have been clearly and explicitly stated throughout Chapter III. How the data was analyzed, converged, and displayed have been described in this chapter. In the next chapter, the conclusions of this study will be explicitly linked back to the research questions, IT Culture theory, and analysis of the data. This transparency creates an important backdrop for assessing reliability, validity, and the plausibility of this study. The reliability of this thesis project was verified by the facts that:

- I described my role as a researcher and the strategies I have utilized to avoid bias (page 68), and I checked the data for bias by reading the responses for inconsistent or contradictory statements, overly positive remarks, or apparent inauthenticity.
- I connected the collection, analysis, and results of my study to an established theory.
- I collected data across a full range of appropriate settings (in homes, outdoors, over the phone, away from potential eavesdroppers, *et cetera*) and demographics (varying socioeconomic statuses, educational attainments, geographic locations, and age ranges).
- A second coder was used during the analysis phase, and our interpretations agreed in 98% of cases within the data.
- I was able to converge multiple participants' accounts and derive consistent meanings.

The validity of the thesis study was verified by the facts that:

- I supplied the reader with a “thick” description of the Choctaw context, including a review of the background of the Tribe, demographics of its members, first person accounts and direct quotations of storytellers, respected individuals with deep cultural knowledge, and participants.
- I triangulated multiple, complementary methods and data sources that produced converging conclusions.
- I identified areas of uncertainty, such as a weaker correlation when converging the IT Skills Value and Justification dimensions from the IT Culture theory.
- I considered the possibility of alternative or rival explanations by considering previous literature and other theories, as well as setting aside the IT Culture theory and making an inductive coding pass.

To address the plausibility and trustworthiness of the study, I solicited the help of three cultural experts within the Tribe to help with interpretation of the data: 1) an employee of the Cultural Heritage department (also a member of a prominent Choctaw family), 2) the Tribe's archeologist (also a Tribal member and holder of a PhD in anthropology), and 3) a Choctaw language teacher (a full-blood Native speaker). Their help led to the discovery of Choctaw-specific symbols to represent the essence of the original IT Culture theory.

In addition, I approached seventeen Choctaw elders—all who are members of culturally-respected families—with the results of the study. The accounts I described, quotations I used, and symbols I selected all rang true with the elders. I received comments like “I couldn’t put it down,” “I see these same things,” and “I believe these to be accurate portrayals of our way of life and beliefs.”

Summary of Results

The results of the study are rich and highly informative. To conclude the analysis phase of the study, a final qualitative inductive coding pass was made through the interview and field note data to discover whether additional themes emerged. Basically, the deductive codes used in the analysis phase (Appendix C) were set aside, and the data were analyzed without the theory in mind. Nothing of significance was found that could not be explained by or fit within the IT Culture theory. This lack of emergent themes outside the theoretical framework gives even further confidence of the construct validity in this application of the IT Culture theory.

The study of the potential role of ICT in Choctaw cultural heritage preservation and sharing uncovered a significant amount of useful data. However, it was primarily the application of the IT Culture theory as an interpretive lens that led to such meaningful results and yielded important considerations of how to move forward.

Summary of the Choctaw IT Culture Patterns

One result of this study is an explanation of the nature of the IT Culture patterns among the Choctaw. The following cluster diagram (Figure IV-11) graphically represents the pervasiveness of the Choctaw IT Culture patterns. The diagram reveals the finding that the *Opa* pattern was present most often (42% of the participants) across all five dimensions of IT Culture—Control, Centrality, Skills Value, Justification, and Beneficiaries. The difference in the other four patterns (*Sintullo*, *Shukuta*, *Luksi*, and *Fula*) is negligible at 17%, 15%, 15%, and 12%, respectively. However, their existence and persistence have implications worth drawing upon in the final outcomes of this study.

These findings form the basis for the conclusions and outcomes of the study. A discussion of the implications on the potential role of an ICT for cultural heritage preservation and sharing among the Choctaw people is presented in the next and final chapter.

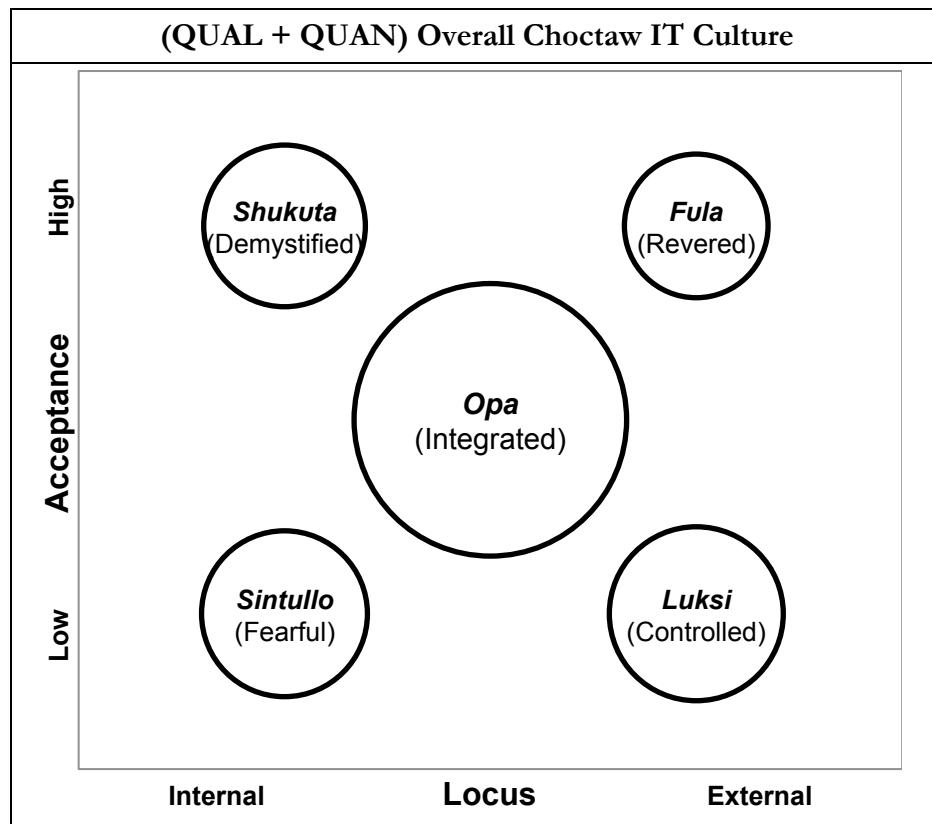


Figure IV-11. Overall IT Culture patterns among the Choctaw

CHAPTER V. DISCUSSION AND INSIGHTS

The Choctaw are facing challenges of preventing their culture heritage from disappearing as older generations of Choctaws pass away. The current eldest generation is a critical link to Choctaw heritage. They are the daughters and sons of original enrollees. The original enrollees were the Choctaws who were counted on the Dawes rolls around the turn of the twentieth century. Their children—the current elder generation of this study—are the last generation to have learned Choctaw as their first language. They are the last generation to have attended boarding schools like the Wheelock Academy. They are an important generation. They represent the transition between the Choctaw ways of old and the modern Choctaw Nation of today.

The Choctaws realize how important the elder generation is. Several participants in this study directly spoke of their concern about elders passing away without the opportunity to preserve and share their wisdom. This concern is the primary motivation that has led the Choctaw to consider technology as a way to preserve their culture. Their motivation, in turn, is the motivation that led to this research study.

Before proceeding any further with creating a cultural ICT, the Choctaws desire to pause and consider the potential impacts ICT may have if they elect to use it to preserve and share culture.

Through analysis of the literature, IT Culture theory (Kaarst-Brown & Robey, 1999; Kaarst-Brown, 1995, 2005) was selected as the theoretical framework for this study (Chapter III) and a mixed-method approach utilized to collect data (Chapter IV). Drawing upon the theory of Information Technology (IT) Cultures or archetypal patterns of assumptions about IT, this research study identified the presence of all five archetypal patterns among Choctaws and how these underlying assumptions may relate to the perceived role of ICT in Choctaw cultural heritage preservation. This final chapter is a discussion and reflection on the research design, what was found or not found, and how these findings contribute to research and practice. Again, the thesis explored three research questions:

1. How appropriate is and how well does the IT Culture theory fit in an ethno-cultural context such as the Choctaw Nation of Oklahoma?
2. What are the implications of Choctaw IT Culture on future ICT development and adoption among the Choctaw related to cultural heritage preservation and sharing?
3. How well does a mixed-methods approach apply the IT Culture theory, as opposed to the original ethnographic design used by Kaarst-Brown (1995)?

The remainder of this section is devoted to a discussion of the findings and implications related to these questions.

Discussion of Findings on Research Question No. 1: Appropriateness and Fit of IT Culture Theory in the Choctaw Context

A key theme in this research from the beginning was culture. Drawing from Schein (1990), culture is viewed in this thesis as a pattern of basic assumptions found in a group as it copes with problems and adapts to change. For the Choctaw, to use technology to share and preserve tribal culture is a change. If they go down the road of a cultural ICT, be it a website or a digital library, they will have to face this change and cope with its outcomes. The impact of ICT on culture and the

cultural roles of ICT is not widely known, particularly among Native Americans (Dyson et al., 2007; Roy & Raitt, 2003). Kaarst-Brown (1995) used a grounded, ethnographic methodology to develop the theory of IT Cultural Archetypes. This theory demonstrates how underlying assumptions about IT influences its adoption and use and the conflict that results. In this thesis, the five IT Culture dimensions of Control of ICT, Centrality of using ICT, ICT Skills Value, Justification of ICT investments, and perceived Beneficiaries of ICT were explored and analyzed in the Choctaw research context. Findings from both quantitative and qualitative data converged to demonstrate the **presence of all five archetypal patterns among the Choctaw included in the sample**—the Fearful, Controlled, Revered, Demystified, and Integrated IT Cultures. It could be argued that these patterns were found because the researcher was seeking them. This is, in fact, *the point*—situating these archetypal pattern outside the original organizational settings in which they were grounded into this unique ethno-cultural context of the Choctaw.

In the original Kaarst-Brown (1995) study, the extended metaphor of magic, wizards and magic dragons was used as a powerful way to illustrate and illuminate our understanding of the five IT Culture archetypal patterns. This extended metaphor emerged from the language, stories, and artifacts used by the participants. Understanding the nature of the archetypal IT Cultural patterns was instrumental in exploring the potential impacts and implications of a future cultural heritage ICT. A challenge for this thesis research, however, was that while the essence of each archetype and the specific dimensions were present and meaningful, the images of dragons and wizards were not directly applicable in the Choctaw context. After confirming the validity of the five general archetypes, a contribution of this thesis study is the identification (from both interviews and confirmation by cultural experts) of potential Choctaw symbols to represent the essence of each of the original IT cultural archetypes.

As part of the analysis and interpretation of the Choctaw data, the researcher identified five animals related to Choctaw history, folklore, storytelling, and spirituality to represent the *essence* of the original IT Culture theory patterns of assumptions. These five animal symbols emerged from the data and were confirmed as relevant metaphors and mythical symbols by a group of Choctaw experts. Each of these Choctaw-relevant symbols has a mystical or metaphysical symbolism that fits well with the original images from Kaarst-Brown's theory. These equivalent symbols to illustrate the essence of the "Choctaw IT Cultural Archetypes" are:

1. *Sintullo* (the Rattlesnake) to represent the Fearful IT Cultural Archetype,
2. *Luksi* (the Turtle) to represent the Controlled IT Cultural Archetype,
3. *Fola* (the Crow) to represent the Revered IT Cultural Archetype,
4. *Shukvta* (the Opossum) to represent the Demystified IT Cultural Archetype, and
5. *Opa* (the Owl) to represent the Integrated IT Cultural Archetype.

Given the lack of relevance of the original images of dragons and wizards used to extend the metaphor of magic, this thesis extended the IT Culture theory by demonstrating the nature of the IT Culture patterns in the specific ethno-cultural context of the Choctaw. As noted earlier, these Choctaw relevant symbols were validated with the help of three cultural experts within the Tribe: 1) an employee of the Cultural Heritage department (also a member of a prominent Choctaw family), 2) the Tribe's archeologist (also a Tribal member and holder of a PhD in anthropology), and 3) a Choctaw language teacher (a full-blood Native speaker). Seventeen Choctaw elders—all who are respected members of the community from culturally respected families—also verified the validity of the animals chosen as symbols for the five "Choctaw" IT Culture archetypal patterns.

The Choctaw identify strongly with these animals in both historical and contemporary senses. Their history recounts how they have coexisted and utilized these animals for their survival and in their daily life. Some animals are embedded in their folklore, such as in stories for their

children. The Choctaw have superstitions and symbolic meanings for some of the animals, like the owl. Still more, there animals are revered or respected for their traits, like the turtle, and are often found integrated in their craftwork (such as beaded medallions) to remind the Choctaws to embody these values in their own lives.

It remains to be seen, however, whether the use of these animals as symbols for IT Culture will be widely accepted by the greater Choctaw community as providing an interpretive lens for discussion related to development of a new ICT for purposes of Choctaw cultural heritage preservation and sharing. However, face-validity is suggested after discussion with cultural experts and community elders. These experts in Choctaw mythology agree that their usage is appropriate, accurate, and meaningful. These preliminary discussions are encouraging. Rather than reporting cold theoretical explanations to the patterns of assumptions found, the selected symbols ground the essence of each pattern in familiar Choctaw iconography. As such, this use of symbols and extended metaphor is consistent with Kaarst-Brown's IT Culture theory, but also is a new contribution. This contribution illustrates the robustness of the IT Culture theory of archetypal patterns by introducing new symbols derived from a specific ethno-cultural context and opens up a new line of future research.

It is important to remember that the selected symbols suggested to illustrate the IT Cultural archetypes for the Choctaw are still based on the patterns of assumptions about technology found in the original theory, including that each symbol for the five cultural patterns has perceived advantages and disadvantages. This was confirmed during the interviews. Regardless of the correlation with a particular IT Culture pattern, respondents echoed the theory that there was none that was inherently "bad" or misguided. Quotes provided in earlier sections of this thesis show that all have their own virtue as well as cautions. As such, acknowledging both the differences in cultural archetypes among the broader Choctaw community, and the inherent strengths and cautions of each symbol make

significant contributions when exploring how the role of ICT can be applied to Choctaw cultural heritage preservation and sharing in a positive way.

Future research can explore the efficacy of these animal symbols with the Choctaw or other Native American peoples who recognize these animal symbols in their own mythology. As such, a limitation of this aspect of the thesis findings is that while the images offer alternative, culturally relevant symbolism for the IT Culture theory among the Choctaw, this thesis project did not test graphical illustrations of the five Choctaw archetypal patterns with a large sample Choctaw population. As with Kaarst-Brown's dragons, however, these symbols have strong face-validity, through consistency with the interview data and discussion with a group of twenty (20) relevant Choctaw experts. As will be noted later under implications for research, further testing of these images and symbols presents a potential avenue for future IT Culture research.

Again, the intent of the Choctaw-specific symbols is to capture the essence of the original IT Culture theory archetypes and extended metaphor of magic or the unknown. While the essence carries over, the data collected in this thesis study revealed an ability to interpret meaning specific to the ethno-cultural context of the Choctaw through the characteristics and mythology embedded in the Choctaws-specific symbols.

Discussion of Findings on Research Question No. 2: Implications of Choctaw IT Culture on Future ICT Development

Unlike Kaarst-Brown's (1995) study where she conducted in-depth historical-biographical interviews across two different organizations and dozens of departmental units, her goal was to identify cultural assumptions about information technology, where they came from, and how they influenced IT strategic alignment in general. The thesis study presented here had different goals in that it sought to study the appropriateness and fit of this theory in a different context to see if relevant insights could be generated. A central motivation and a unique aspect of this research study

were to gain insights about the Choctaw people *before* a new ICT was introduced rather than after the fact when unexpected consequences were realized. Research question two focused on developing these insights through specific exploration of the archetypes as well as other interview questions. These insights emerged as a result of first analyzing the data across the five IT Culture dimensions—Control, Centrality, Skills Value, Justification, and Beneficiaries. With these insights, the Choctaw can better anticipate if or how ICT should be utilized in their cultural heritage preservation and sharing efforts.

Chapter IV provided findings related to the qualitative and quantitative data, and interpretation of the five equivalent symbolic images viewed as relevant for the Choctaw. In the theory of IT Culture, Kaarst-Brown (1995) identified the metaphor of magic and symbols of wizards and dragons from her interviews, biographical histories, artifact and semiotic analysis to explain the assumptions about information technologies found within an organizational context. They are powerful metaphors and archetypes. They helped explain to a broader audience the complexity of how a subset of cultural assumptions about IT impact adoption, use and conflict in different settings (Kaarst-Brown & Robey, 1999; Kaarst-Brown, 2005). In the Choctaw application of this theory, the animals used as symbols are all different. However, they still reflect the essence of each archetype, the utility of each pattern, and have equivalence with the original IT Culture theory. Below is a discussion of the insights from each pattern and their implications for future IT development, specifically related to Choctaw cultural heritage preservation and sharing.

Sintullo (the Rattlesnake) to represent the Fearful IT Cultural Archetype: The essence of the Fearful archetypal pattern (Kaarst-Brown, 1995) typically implies that a person tries to avoid technology or minimize its impact in work and life. IT is “out of control—avoid it” (Kaarst-Brown, 1995, p. 353). Based on the sample who participated in this thesis study, and consistent with the original theory, the Choctaw who share assumptions consistent with the *Sintullo* (Rattlesnake) or Fearful pattern may

or may not be regular users of technology, depending on whether they feel they have no choice. When they consider the negative choice of losing their history, language and other symbols of their culture, many see ICT as their only choice. Still others, like those in the sample, may only see ICT as negative when it is applied to their culture, even while uses of technology in other areas of their life are viewed as necessary and acceptable.

Luksi (the Turtle) to represent the Controlled IT Cultural Archetype: People who think Choctaw leaders should have tight control of technology—so it does not get out of hand—typify the essence of the Controlled IT Cultural archetypal pattern. Information technology and those who develop it are seen as supporters, rather than partners or leaders (Kaarst-Brown, 1995, 2005). For the Choctaw, the symbol of *Luksi*, the turtle, best symbolizes this pattern. The symbol is rooted in Choctaw history as a prominent Choctaw chief known for his tenacity and stalwartness was called the “snapping turtle”. Choctaw who reflected the Controlled pattern look to Tribal leaders to guide and control ICT used for cultural preservation and sharing. To the Choctaw, the turtle is known as a symbol of perseverance, being tenacious and strong. In the Choctaw context, this archetypal pattern carries the hope that ICT can help their culture persevere, *if and only if* it is tightly controlled and managed by Choctaw leaders as part of a sustained strategy in line with Choctaw wellbeing. Some Choctaw will be watching to see that leaders stay connected to, informed, and in control of these ICT initiatives, putting people first and technology second. Even if strong technological leaders exist among the development team, the importance of Choctaw cultural values over technology must be evident in who guides the project.

Fvla (the Crow) to represent the Revered IT Cultural Archetype: The Revered archetype exemplifies information technologies as the giver of gifts. As such, resources should be lavished upon it to support the goals of the Choctaw people. In the same way that the mythological Choctaw gave up his *Fvla* (Crow) to a hungry woman and she blessed his people with the gift of corn, providing

resources for technology development is seen as an important way to sustain the Choctaw people into the future. Those within the Choctaw sample who were interpreted to reflect the Revered (*Fvla* or Crow) archetypal IT Culture pattern went so far as to suggest ICT's are the primary way to sustain their people's culture into the future. Just as Kaarst-Brown found that there were strong champions of IT outside the traditional IT function ("IT rules!"), this archetype includes Choctaw throughout the community with high expectations, enthusiasm and ideas for how ICT can be used (Kaarst-Brown & Robey, 1999; Kaarst-Brown, 1995, 2005). This group can be counted on to support future initiatives, but they may also push faster than those reflecting other sets of assumptions about information technology.

Shukvta (the Opossum) to represent the Demystified IT Cultural Archetype: The Demystified archetypal pattern reflects Choctaw who believe they know what is best for them in terms of technology use. In the Choctaw context, this pattern is family-centric rather than individual-centric, or to paraphrase Kaarst-Brown, "Families can do it better." Like the story of the wizard's apprentice imagery, however, the Opossum symbol in Choctaw mythology is accompanied by a warning. In "Why the Possum's Tail Has No Hair" (Hudson, 2012), the hair on the Opossum's tail was burned off because he saw the racoon's patterned tail and wanted it for himself, not truly knowing how to achieve this. Choctaw holding assumptions of the *Shukvta* (Opossum) or Demystified pattern should heed the wisdom learned from the Opossum's experience and not become burned by hasty ICT use or separation from the larger Tribal-wide cultural heritage initiatives. It will be important to balance these Tribal-wide initiatives with individual family support for those who seek the same goals but wish to have family-level control over their memories.

Opa (the Owl) to represent the Integrated IT Cultural Archetype: The Integrated pattern may seem the ideal partnership between technology, its wizards, and the people who use it and as such may overlook the risks for IT development (Kaarst-Brown & Robey, 1999; Kaarst-Brown, 1995, 2005).

For the Choctaw, the *Opa*, or Owl, is a symbol of wisdom and change. From this pattern, we learn how some Choctaws hold a balanced view of technology and accept it for what it *is* and what it is *not*. The Integrated pattern was the most pervasive among this study's sample of Choctaw people. However, the small sample size ($n=26$) limits the study's ability to generalize and predict whether the Owl's wisdom (Integrated archetype) is the most dominant pattern across the Choctaw Nation of Oklahoma. The presence of this archetype, however, supports that some Choctaw will expect a rational, well-analyzed, and justified plan for whatever ICT is used to support cultural heritage preservation and sharing. There may be strong opinions and debates felt, even if not openly expressed. As such, the Owl highlights the importance of providing opportunities for Choctaws to continue to express their voice and engage in ongoing discussions and communications so that wise decisions can be made for the whole Tribe. Table V-1 summarizes some specific lessons for future IT development that we can learn from the individual archetypes.

Moving beyond these specifics, there are also general lessons that the findings support in relation to the Choctaw people and the multi-generational nature of the participants. For example, some aspects of Choctaw culture do not lend themselves well to be adequately shared via an ICT. Simply put, no matter what technological solution the Choctaw develop, it will not be a comprehensive collection of the culture. First, certain cultural expressions cannot be captured, preserved, or shared fully by an ICT. Many of these expressions are considered too immersive to appreciate fully their value and meaning. The Choctaw, like many Native Americans, are deeply grounded in the experience of real life. As such, technology is often viewed as "not as good as the real thing." Second, some aspects of Choctaw culture are considered too personal, sensitive, or sacred to be stored or shared in an ICT. In some instances, the information is considered possibly embarrassing or shameful to the family, that is, a Choctaw cultural heritage ICT is not the venue for revealing skeletons in the family closet, so to speak.

KEY FINDINGS REVEALED IN THE CHOCTAW CONTEXT	ARCHETYPAL IT CULTURAL PATTERN
<ul style="list-style-type: none"> Acknowledge that some Choctaw will see this as their only recourse to preserve their culture but will be wary of the risks Enrich the cultural meaning and significance with the ICT, rather than diminish it. Focus on aspects of Choctaw culture that are <i>best</i> suited for sharing via an ICT. Be patient in the development process; quality over speed is desired. 	Fearful or <i>Sintullo</i> (the Rattlesnake)
<ul style="list-style-type: none"> There will be expectations of strong tribal leadership and integration of ICT strategies with overall tribal goals Put appropriate constraints on those assigned responsibility for technology development to ensure betterment of the heritage preservation and sharing effort. Protect Choctaw cultural heritage from misrepresentation and abuse via the ICT. 	Controlled or <i>Luksi</i> (the Turtle)
<ul style="list-style-type: none"> There will be champions from the community who see technology as the best option Start work on the ICT right away, because of the urgency to preserve the culture. Ensure cultural accuracy is paramount to all technical concerns, but exploit suitable technologies where possible. 	Revered or <i>Fvla</i> (the Crow)
<ul style="list-style-type: none"> Focus cultural preservation using ICT to support individual Choctaw families as well as broader tribal initiatives. Support family imitative to reduce the risk of negative consequences of using ICT for family Choctaw heritage preservation and sharing. Sensitive or sacred aspects of family Choctaw culture may need to be protected – preserved but not shared. 	Demystified or <i>Shukvta</i> (the Opossum)
<ul style="list-style-type: none"> Provide opportunities for dialogue around problems and possible ICT solutions, showing thoughtful choices Avoid the loss of identity as Choctaws and be aware of assimilating or embedding values in the ICT that are contrary to the Choctaw way – technology may not always be the solution. Supplement cultural knowledge learning via ICT, but do not supplant knowledge gained through real life experience as a Choctaw; Balance the technology usage with real-life cultural experiences. Sensitive or sacred aspects of Choctaw culture should be protected. 	Integrated or <i>Opa</i> (the Owl)

Table V-1. Specific Implications of IT Culture Patterns for Future Choctaw ICT Development

In addition, there are sacred expressions, such as medicinal and spiritual practices, that Tribal members desire to keep out of an ICT as well. The reason in several cases is disagreements over what is considered sacred and what is “voodoo”—a place where cultural assumptions intermix with religious beliefs (Thomas, 1971). A primary concern in Western terms is privacy and confidentiality, and the most proper way the Choctaws believe these instances should be handled is to exclude them from an ICT at all. Therefore, protect sensitive or sacred aspects of Choctaw culture. Allow each family the choice of participation, *i.e.*, the choice of technology, grandmother’s lap, or somewhere in

between. Despite the apparent dominance of one or two IT cultural patterns among those studied, the existence of all five archetypes suggests that each must be respected. Whereas some of the Choctaw holding assumptions consistent with the “Revered or *Fvla* (the Crow)” archetypal IT cultural pattern, there are others who hold different and potentially conflicting assumptions on the other four archetypes. Any particular technological solution cannot be forced on them.

It is important to the Choctaw that their culture is portrayed in all its intricacies and complexities. The concern among several Choctaws is that an ICT would give a user of the information the misguided impression that Choctaw culture is merely a trifle activity. For example, a video may be streamed from the cultural ICT showing how an elder cooks her family’s fry bread over a campfire. While someone could watch this video and attempt to do the same on their own, the Choctaws claim that unless one is there and personally experiences the actual process, one cannot “get it.” *Substandard* portrayals of culture via technology are perceived to be cheapening, lessening, or detracting from the cultural meaning and significance. Portrayals of culture via technology should only enrich the cultural meaning and significance. In a way, the cultural heritage ICT can be thought of as a forum where Choctaw cultural “experts” share their practice and knowledge, as opposed to a do-it-yourself guide for novices and beginners. It can be likened to the difference between a book report and the original text or primary source. In this way, the sacredness and integrity of Choctaw cultural expressions can be maintained, perhaps by initially focusing on connecting those already connected to their Choctaw cultural heritage. Therefore, make the ICT less *how-to* and more about connecting Choctaws who have similar cultural practices and rituals in their families to discuss and share.

The Choctaw cultural heritage ICT must also be actively protected from misrepresentation and abuse. A strong concern of the Choctaw in the sample, particularly from the *Sintullo* (Fearful) and *Luksi* (Controlled) patterns of assumptions, is that a cultural ICT left unconstrained could get

out of hand. Several are concerned that some of the features of social media technology, *e.g.*, open commenting or un-moderated forum discussions, could open the floodgates to inappropriate content and misrepresentation. Therefore, the ICT should only permit members authorized and recognized by the community to create, add, or discuss content.

Across almost all patterns of assumptions (even *Sintullo*, the Rattlesnake or Fearful IT Cultural archetype), there is a sense of urgency that something must be done to preserve the culture before the current generation of elders passes on. Almost all participants across all patterns of assumptions agreed that technology could be a useful tool for this activity. Despite the flaws perceived of an ICT by the Choctaw, they are not fatal flaws. Information technology is still seen as a useful tool if used properly and should be utilized sooner rather than later before the next generation passes away. There was regret expressed by some participants for those who have passed without the opportunity to share their wisdom. Therefore, the study's findings show support for the recommendation to utilize an ICT for cultural heritage preservation and sharing as soon as possible.

Preservation of the authentic culture using ICT is believed to be highly beneficial to Choctaw families. Another perception of the role of ICT in preservation and sharing common to all the patterns (not just *Shukvta*, the Opossum or Demystified) is that the effort will be beneficial to the individual family units. The Choctaw believe that, first and foremost, the family will be the primary producers, consumers, and sharers of information regarding their own family, and as such they should be the focus. Thus, design the ICT to be primarily family-centric and meet Choctaw families' preservation and sharing needs first and foremost.

Technology usage should be balanced. The Choctaw recognize the limitation of technology to be able to preserve and share its cultural heritage exhaustively. In many instances, it will be preferred, and even necessary, to exclude ICT from particular cultural expressions. Another point that resonated throughout the participant group is that cultural knowledge transfer or learning via

ICT cannot replace knowledge gained through real life experience as a Choctaw. There was a feeling that ICT can only approximate, and not replicate, true Choctaw culture. Therefore, the findings support that as the Choctaw invest in cultural heritage preservation and sharing that they do not rely on the ICT as the only way to preserve and share Choctaw culture nor allow it to overshadow traditional cultural expressions where the culture is shared in-person.

It became evident that patience will be required in the design, development, and implementation of the cultural heritage ICT. Quality of the cultural representation is desired over the speed at which technology affords in creating and disseminating digital artifacts. That is to say, cultural accuracy is paramount in all technical concerns. In this way, the Choctaw desire to avoid assimilation into the mainstream cultural attitudes and beliefs of the “now” generation—the belief that everything should be at their fingertips in an instant, *i.e.*, the attitude perpetuated by the speed at which technology is able to deliver information. The ICT should be a safe place of contemplation on the culture and not where just anyone can “tweet” or “post” the first thing that pops into their mind. This issue is rooted in a spirit of respect and desire for integrity among the Choctaw participants. Their culture is sacred to them, and there is nothing trivial about it. The ICT should not be conducive of flippant comments but serious discussions (or even debates) over cultural matters. Thus, ensure cultural expressions are moderated and preserved with accuracy and integrity before they are shared.

As one can see, application of the IT Culture theory to understanding Choctaw archetypal patterns of assumptions about technology yielded several implications and actionable ways ICT developers and the Choctaw community can proceed with a cultural heritage project.

- Protect sensitive or sacred aspects of Choctaw culture;
- Allow each family the choice of participation, *i.e.*, the choice of technology, grandmothers knee, or somewhere in between;
- Make the ICT less *how-to* and more about connecting Choctaws who have similar cultural practices and rituals in their families to discuss and share;
- Only permit members authorized and recognized by the community to create, add, or discuss content;
- Utilize an ICT for cultural heritage preservation and sharing as soon as possible;
- Design the ICT to be primarily family-centric and meet Choctaw families' preservation and sharing needs first and foremost;
- Do not rely on the ICT as the only way to preserve and share Choctaw culture or allow it to overshadow traditional cultural expressions where the culture is shared in-person; and
- Ensure cultural expressions are moderated and preserved with accuracy and integrity before they are ever shared.

Table V-2. General Implications of Choctaw IT Cultural Patterns on Future ICT Development

Discussion of Findings of Question No. 3: Aptness of Mixed-Method Approach in Applying IT Culture Theory

In creating the research design, I selected a methodology that would be appropriate for both the IT Culture theory and the Choctaw context. Time constraints made a full ethnography impractical, but it can also be argued as less critical given that an *a priori* theory was used as the lens, testing its appropriateness even as contextual insights were sought. These methodological decisions resulted in a mixed-method design, as opposed to ethnography or grounded theory (Kaarst-Brown & Guzman, 2008), to explore the existence of the five IT Culture patterns and their associated dimensions within the Choctaw. The design consisted of a nested concurrent strategy where quantitative survey questions were asked during qualitative structured interview sessions with key informants. The reasons for this are discussed in Chapter III. As noted in the findings and discussion above, this methodology was found to be successful for the purposes and goals of this thesis study.

By extending the IT Culture theory and utilizing this mixed-method approach, this thesis contributes to an understanding of the underlying assumptions about ICT found in a subset of culturally respected families of the Choctaw Nation. However, the design was not without weakness. The relatively small sample size ($n=26$), while large enough to discover the existence of all five IT Culture patterns, was too small to generalize the persistence or dominance of any particular IT Cultural pattern across the entire Tribe. We do not know if there are any other determining characteristics that explain who might hold various assumptions nor how many, as this was beyond the goals of the study. Consistent with Kaarst-Brown's original study, the limited generational variation in the sample did not reveal any consistency across archetypes. A survey with an adequate sample size would be required to discover the pervasiveness of the patterns and new insights into what influences development of the archetypal patterns. However, the literature cautions against the use of large-scale surveys with Native Americans as surveys do not typically work well in these populations (Alayed, Buehler, Komlodi, & Epstein, 2012; Birkland & Kaarst-Brown, 2012). The exploratory pilot study conducted with the Choctaw before embarking on the primary thesis study helped build some level of rapport and opportunities for discourse around methodological choices (Kaarst-Brown & Dolezal, 2012). This guided and strengthened the relevance of the design for this Choctaw context. By combining survey and interview questions, the overall trustworthiness of the results was strengthened. The trustworthiness of findings and their interpretations were further supported through crosschecking with twenty experts, similar to others' advice found in the literature (Kaarst-Brown, 1995; Lincoln & Guba, 1985; Nielsen & Gould, 2007). This effort highlights the importance of researchers checking and consulting with people to verify their understanding and interpretations.

A second potential weakness of the five survey questions is that they are single-item measures, as opposed to multiple-item measures, for each of the IT Culture dimensions (Bergkvist

& Rossiter, 2007). The mixed-method approach overcomes this limitation because of the design and integration of qualitative with quantitative data. Should future research explore the effectiveness of a survey approach to identify the five IT Cultural Archetypes, additional items should be developed and tested to strengthen future findings.

This methodological design was a better opportunity to understand the research problem by collecting and converging data at multiple levels—some deep, detailed data along with some broader trended data—to uncover the nature of assumptions about technology found among culturally respected Choctaw families. This design recognized the inclusion of voices that have been silenced, misrepresented, or marginalized (Mertens, 2003); the Choctaw voice has been largely ignored in the past. The methodology allowed their voice to be heard on this issue of ICT intermixing with their culture, rather than using a survey short form and risk snuffing out their space to contemplate and express their deepest concerns.

In short, I found the mixed-method approach to be both appropriate and effective to apply IT Culture theory to a Native American population. I predict ethnography could have been equally as effective. However, the time-cost-benefit trade-offs would have made ethnography take too long, cost too much, and yield too little more beyond what the mixed methods were able to accomplish.

Implications and Directions for Future Research and Practice

The previous discussion of the findings as well as the delimitations of this thesis research support several new directions for research and implications for practice.

Implications for Research

In answering the three research questions, this research project makes valuable contributions to information field research and the scholarly community. Table V-3 summarizes these implications.

- Contributes to a growing body of mixed-methods research that integrates quantitative (survey) and qualitative (interview) data.
- Successfully applies a mixed-method approach, including a subset of survey questions to explore Kaarst-Brown's IT Culture Theory of Five Archetypal Patterns.
- Extends Kaarst-Brown's IT Cultural Theory of Archetypal Patterns beyond the organizational context and into an ethno-cultural context of the Choctaw peoples, including identification of alternative, context relevant symbols.
- Offers an alternative methodological and theoretical approach to understand user assumptions about ICT prior to implementation.
- Contributes to a growing body of literature on the dynamics of ICT and culture.

Table V-3. Implications and directions for future research

Methodologically speaking, this project adds to the growing body of literature on mixed-method studies, particularly nested concurrent and participatory-emancipatory procedures. It demonstrates a practical, yet rigorous and robust, design that balances depth and breadth. This project successfully applies the IT Culture theory (Kaarst-Brown, 1995) using mixed methods instead of ethnography or grounded theory. This benefit could be of particular use to professional doctorate candidates like myself. Professional scholars must balance practicality with the short timeframes and easily digestible work deliverables required in professional careers.

Additionally, this project is the first official attempt to test a sub-set of survey questions related to the IT Culture theory, and further shows the potential of using a survey instrument to identify widespread cultural patterns and attitudes about technology within a population. Again, previous research has found widespread impersonal surveys to be ineffective in Native American communities (Briggs, 1986; Colorado, 1988; Duffy & Stubben, 1998; Julnes, 1994). The plus side, however, is the result of this study demonstrating a strong correlation (77% correlated overall) between the five survey questions and interview responses. It can be predicted that if a quantitative, survey-based study of IT Culture were developed with a sample of Choctaws geographically dispersed across the United States, the results would likely be as valid and informative of the

underlying assumptions about technology found in the sample population. A recommendation for future research would be to pursue additional survey design testing to see if question wording of survey questions could be modified to increase the correlations even further.

Regardless, this first exploration of a mixed-method design with survey questions as a tool to identify the five IT Cultural Archetypes paves the way for other scholars to test the IT Culture theory in other organizational, industrial, cross-national or ethno-cultural contexts. The strong correlations found between quantitative and qualitative data also provide encouragement for further exploration of a pure survey design to study IT Culture in settings where survey methods are more traditional means of data.

Both the quantitative and qualitative data suggested a strong fit and strong correlation with the theory of IT Cultural patterns and their associated archetypes. This was not a “perfect” fit, but rather than suggesting that the IT Cultures theory is not appropriate or a good fit, it raises another explanation related to the concept of Native-American biculturalism, that is, the phenomenon where Native Americans inhabit two different cultures and switch back and forth as they interpret cues from the environment (Hong et al., 2000; Silver & McCurdy, 2008). This was outside the goals of this thesis study, but future research may find the extended Choctaw symbols proposed for the IT Cultural Archetypes to be a useful way to explore this disconnect. Now that alternative and culturally relevant or context relevant symbols have been proposed, there may also be opportunities for future quantitative and qualitative research to study if they have strong efficacy in practice.

Keep in mind, however, that the data and interpretive lens for this study did not come from a single layer or slice of the context. I have spent *seven years* working with the Choctaw. Through this daily interaction I was able to make direct observations (even though they were not made as a part of a formal study) that I could compare against the findings of this thesis study. In addition, I had extensive dialogue and interaction with elders and cultural experts seeking confirmation or

challenges to my analysis. What I learned and have presented in this document is consistent with my observations and conversation over my tenure with the Choctaw. The identification of the archetypal patterns provided new insights and explanations that had previously been lacking.

Not only that, but the benefits of the *Chahita Sia* pilot study—conducted a year prior to this thesis project—were made clear by the thesis project outcomes. As a researcher, I enjoyed the advantages of having conducted prior research in the context. The pilot study increased my access by making me more recognizable in the community and created vital contacts that were able to introduce me to families who would ultimately supply the participants for my thesis. The pilot study also steered me away from taking an initial large-scale survey approach by demonstrating the value of depth before breadth when approaching a research problem for the first time with the Choctaw. It helped me realize that understanding the nature of the archetypal patterns and capturing their essence in terms to which the Choctaw can better relate needed to come before measuring how pervasive the patterns are throughout the population. I recommend qualitative researchers consider a pilot study when approaching a new problem in a new context (Kaarst-Brown & Dolezal, 2012).

Another outcome of this project is in anticipating the acceptance and use of ICT within a community, particularly in regards to cultural heritage preservation and sharing. Quantitative approaches to measuring technology acceptance have been often criticized in the literature (Bagozzi, 2007; McCoy et al., 2007). However, this mixed-method approach was able to dig more deeply into the reasons behind various assumptions about information technology. Using these findings, we are able to propose considerations to make and actions to take to help support a more positive outcome. Librarians and other information professionals have long evaluated information services and resources (Covey, 2002) and assessed user information needs, uses, seeking and retrieving behavior (Dervin & Nilan, 1986). Metoyer-Duran—a scholar, board member for multiple Native museums and libraries, and consultant to the National Indian Education Association—stated,

Continuing to apply traditional user surveys may not be an effective means to study culturally diverse communities...[Information professionals] must develop new approaches to study and understand the information-seeking behavior of ethnic groups (Metoyer-Duran, 1993, p. 18).

This research design offers a new theoretical and methodological approach of anticipating use and reactions *before* the information resource was even existed by demonstrating a personal and cultural stake in the resource itself. Also, this project seeks to establish a new means to assess technology acceptance in an ethno-cultural context where quantitative approaches and theoretical applications have fallen short, such as the Technology Acceptance Model.

Another outcome of this project is a contribution to the growing and important body of literature on ICT and culture. Regarding impact, Leidner (2010) asserts there is a plentiful amount of literature on the impact of culture on an ICT but a limited amount of study on the impact of an ICT on culture. This study forwards the thinking on this subject by anticipating the potential impacts on culture that an ICT can have, rather than implementing an ICT in hopes that it “turns out all right.”

The thesis project provides lessons learned that other scholars who attempt to bridge ICT studies between organizational and ethno-cultural contexts could use. These lessons support findings from prior research and remind non-native researchers to continue to emphasize them.

- Never lose sight of the needs and voices of the community in the conduct of research, application of theory, or interpretation of results;
- Discuss the project with as widespread array of community members as possible to understand the subtleties of the community to be investigated;
- Conduct a pilot study before designing a larger qualitative or mixed-method study; and
- Bring the results back to the ethno-cultural community in terms that meaningful to their culture.

Implications for Practice

This research strove to provide reciprocity by giving back to the Tribal community and not just taking something away for my own purpose or scholarly benefit (Guyette, 1983; Nielsen & Gould, 2007). Several implications have been presented in the earlier findings chapter, as well as earlier discussion in this chapter. The focus of this section is on practical and actionable recommendations for Choctaw leaders and those assigned responsibility for Choctaw wellbeing and cultural heritage preservation. (At the time of this writing, findings and recommendations have already been shared with several Tribal leaders and members of the community with enthusiastic feedback and responses.) Table V-4 summarizes the implications for practice:

- Findings serve as a basis for leaders to understand the underlying assumptions about technology held by members of the Choctaw Nation of Oklahoma;
- Findings provide culturally relevant symbols and images that can be used to further engage the community in timely discussion about the role of ICT in cultural heritage preservation;
- Leaders may be better able to understand and manage potential conflict that results from the diverse expectations about the role of ICT for the wellbeing of the Tribe.
- The study serves as a model for future research initiatives within the Choctaw, and encourages creative exploration of the Choctaw voice.

Table V-4. Implications and directions for practice

Because of the application of IT Culture, tribal leaders are now able to anticipate what the reaction to a cultural heritage ICT will be among the Choctaw community. This study benefits both the Choctaw people and leaders by identifying potential opportunities and barriers to using an ICT for their cultural heritage preservation and sharing. Assumptions are extremely powerful in information systems development (Myers & Young, 1997). Choctaw leaders and technical/cultural specialists working to develop a cultural heritage ICT now have insights to the underlying assumptions and diversity of assumptions found among their constituents. These assumptions are informative and can provide parameters, constraints, and considerations to employ throughout the design, development, and implementation of a cultural heritage ICT. Since all five archetypal

patterns exist, leaders, ICT developers, and community members will have to face the implications of each pattern at some point in the process, as well as the potential for conflict rooted. As cultural heritage initiatives continue, they can be founded on an understanding that conflict is rooted in deep assumptions about ICT's rather than just resistance to technology usage or lack of knowledge.

The risk in *not* conducting this research study was the potential of subjecting the Choctaw culture to the Westernizing, colonizing, and assimilating forces embedded within technologies (Dyson, 2004). The Choctaw people have already received more than their fair share of that treatment, and this study stops and considers this before creating a technological “Trail of Tears”. This lesson is heard the loudest among the Fearful Choctaw IT Culture pattern.

From the IT Culture patterns of assumptions found among the Choctaw, leaders and cultural/technical specialists can anticipate that the reaction to a cultural heritage ICT will likely be positive overall, if they address the diverse underlying assumptions found among the Choctaw people. The following guidelines will lead Tribal leaders and technical/cultural specialists in a positive direction as they work with the community in this important effort:

- Recognize, honor, and protect aspects of Choctaw culture that must be avoided from being preserved or shared to address assumptions of the Fearful pattern;
- Actively protect the ICT from signs of neglect, abuse, disrespect, or defamation of Choctaw people or their culture to address assumptions of the Controlled pattern;
- Start quickly, but take their time and ensure that cultural expressions are portrayed with accuracy, respect, adequate complexity to address assumptions of the Revered pattern;
- Engage elders and their entire families about how best to preserve and share their culture to address assumptions of the Demystified pattern; and
- Promote real-life, authentically experienced Choctaw culture over technological expressions of culture to address assumptions of the Integrated pattern.

This study of IT Cultural patterns contributes to the current discourse on culture preservation and sharing within the Tribe—much like the initial pilot *Chahta Sia* project (Kaarst-Brown & Dolezal, 2012). This thesis project is aptly timed as the Tribe is considering major decisions about heritage preservation, such as whether to build a cultural center and museum, and what to do with repatriated cultural artifacts as private collectors pass away and bequeath them back to the Tribe. This thesis research fits a contemporaneous space of cultural discourse within the Tribe and contributes to the decision-making ability of Tribal leaders and members. More importantly, the timing of this research project is critical. The Tribe needed the results of this study to make a decision as soon as possible. They do not want more time to lapse and risk losing even more elder wisdom than has already passed.

There is already discussion by community members of how to use technology to preserve and share the Choctaw way of life. This study may help those who are enthusiastic in their use of ICT to preserve and portray—even play an active role in—future cultural expressions. In this way, the community will define what Choctaw cultural heritage preservation is and what it will entail. The archetypes will influence this. For example, the Fearful pattern will help the Choctaw recognize and honor sensitive aspects of Choctaw culture and steer technology away when necessary. The Controlled pattern will help the Tribe protect cultural depictions in an ICT from disrespect and defamation. The Revered pattern will bring enthusiasm and will promote the preservation and sharing process. The Demystified pattern will engage the entire family, making sure no one is left out. The Integrated pattern will bring balance and harmony between all the other patterns in terms of technology use. Thus, each archetype will help define in its own way the technological cultural heritage preservation and sharing activities that are most appropriate for the Tribe.

A further contribution of this study to practice is that the overall design may serve as a model for future research initiatives within the Choctaw Nation, and encourages creative

methodological exploration of the Choctaw voice and the self-determination efforts of the Choctaw Nation. This research demonstrates the value of mixed-method approaches for future inquiry within the Tribe. Future researchers with the Choctaw can benefit from a similar approach and gain depth from a qualitative component to their strategy. This depth will contribute to concurrent or subsequent quantitative research strategies that can be deployed and enjoy greater effectiveness. Pilot studies, observations, conversations, and interviews with Choctaw provided valuable insights and can be used to improve the delivery of surveys or other research designs. In the case of this study, I came away with improved terminology and relevant symbols for further inquiry. Also, the Choctaw are very social and willing to open up about issues affecting their culture and way of life, particularly when a researcher can approach the setting with an attitude to help and is willing to devote the time to earn trust and rapport. Choctaw are empowered when they have a voice, and when they are allowed to have a voice, they reveal ways to improve and affect positive change from within the community.

Keep in mind that prior to self-determination, the Choctaws were never *asked* how they felt about giving up their ancestral lands and moving to Oklahoma (DeRosier, Jr., 1981). Nor were they *asked* whether they would prefer to use English over their native tongue in the boarding schools and other places of forced assimilation (*Interview of Choctaw elder J. M. B. McKinney*, 2007). In light of this and other historical atrocities endured by the Choctaw people, the researcher believed strongly in the importance of asking the Tribal community how they felt about their culture being mediated and shared using ICT. While the dominant U.S. culture seems to rush to adopt the latest gadgets and gizmos of the Information Age, the Choctaw should be allowed to determine the right course for them. This design of this thesis study supported that goal. Choctaw scholar, Donna Akers, wrote,

Most distressing to me and some of my colleagues in academia is... the way native people and relations are depicted in [academic] texts. White scholars... believe they now can speak adequately for native people on native history and perspectives. Sometimes their liberal predispositions suggest to them that they can somehow equate speaking *for* a people with

allowing those people to speak for themselves. It always astonishes me that white scholars apparently understand fully the necessity of cultural diversity, yet feel it is unnecessary to bring native people into the inner circle of the academy... Native voices are rarely allowed to speak. (2004, p. 148)

If I had it to do over again, I would have investigated more about the specific ways technology could be used in Choctaw cultural heritage preservation and sharing. I would have done this concurrently with the investigation of underlying assumptions and archetypal patterns. This way I might have “killed two birds with one stone.” As it stands, this is a step in the process I will go back and revisit, but this time I will have relevant cultural symbols at my disposal when communicating with a diverse community on how to move forward with preservation and sharing.

Exploring and extending the IT Culture theory in this way ensured that the Choctaw voice is heard. I do not and will not assert that any scholar or technical/cultural professional expert or I know the best way for a Choctaw family to preserve and share their culture. A practical value of exploring the IT Culture theory’s fit is that it has not only identified a framework of issues (dimensions) to guide discussions, but also has identified a potential symbolic, metaphorical language that the Choctaw can use to discuss the role of ICT in cultural heritage preservation and well-being of the tribe. The results of this thesis study may provide a bridging between the cultural and the technical that will engage the community in setting their path. Based on discussions already held with Choctaw leaders and members of the Choctaw community, they agree that these findings and the extended symbols will provide a useful basis for ongoing discussions.

In a speech to John C. Calhoun, one of the most popular and famous Choctaw chiefs, Chief Pushmataha, stated, “I have been here at the council-house for some time, but I have not talked... You shall hear me talk today... You have, no doubt, heard of me. *I am Pushmataha*” (Bryan, 1906). Like Pushmataha, Choctaw people are saying, “*Chabta sia...* I am Choctaw.” This thesis serves as a seedling for what is hoped to be a legacy project. The Choctaw people have a voice through their

culture, and this project aspires to be worthy to hear that voice and empower Choctaws to carry it to generations and families of Choctaw for years to come.

Concluding Remarks

In conclusion, the outcomes of this study of the role and implications of underlying assumptions about information and communication technology on Choctaw cultural heritage preservation and sharing are as follows:

- An understanding of the nature and pervasiveness of the cultural assumptions about technology present with Choctaw storytellers and their family members;
- Actionable guidelines to support decisions on the development of an ICT for Choctaw cultural heritage preservation and sharing;
- An extension of the Kaarst-Brown (1995) IT Culture theory beyond an organizational context and into a socio-cultural one; and
- A contribution to the scholarly literature on the impacts of ICT on culture, mixed-method strategies, and theory application.

This research is only a beginning of a series of potential work as the Choctaw people progress to preserve and share their cultural heritage. The goal of this body of work is to provide the Choctaw people with tools that have the “capacity to aspire” (Appadurai, 2000, p. 65) and strive further towards self-determination. In the words of one scholar,

Any developmental project... should develop a set of tools for identifying the cultural map of aspirations that surround the specific intervention that is contemplated. This requires a method of placing specific technologies or material inputs in their aspirational contexts for the people most affected by them. This will require careful and thoughtful surveys, which can move from specific goods and technologies to the narratives within which they are understood and thence to the norms that guide these narratives. (Appadurai, 2004, p. 83)

This and future studies aim to do just this—to put ICT in the cultural context of the Choctaw people and to understand their implications.

APPENDIX A. INTERVIEW QUESTIONNAIRE

1. Who do you think should be in charge of how computer technology is used to keep your family's stories and share them with the next generation? Please choose only ONE of the following:

- Tribal leaders (Chief, Assistant Chief, Tribal Council, and other leaders)
- Technology/cultural specialists—people who know a lot about technology and study our culture
- You and your family should decide when and how to use technology to preserve or share your cultural heritage
- Choctaw families like you working with the technology/cultural specialists
- We should not be using technology to preserve our stories or other parts of Choctaw culture

2. How important to you is it that we use computer technologies to keep your family's stories and share them with the next generation? Please choose one of the following:

- The preservation of our culture is completely dependent upon computer technologies
- Modern technologies are very important to *certain* parts of Choctaw culture, but not all
- It is very important that we have some way of preserving Choctaw culture,
- It's more important *who* is involved rather than whether or not technology is involved
- Technology is *not significant* at all to preserving our culture

3. Regardless of how the Choctaw Nation uses computers and technology to preserve Choctaw culture, how valuable to you is it that you and your family have computer and technology skills and know how to use them? Please choose one of the following:

- Having computer and technology skills is very valuable and important
- We should all know how to use computers and technology; it's simply expected in this day and age
- In this case, computer and technology skills are valuable only with people who do not know Choctaw culture very well
- Computer and technology skills are not so important to our culture, but may be useful if the Tribe's leaders say so
- Computers and technology skills are not valuable and are even threatening to our culture

4. For families such as yours, what do you feel "is a good reason" or "what would justify" buying new computers or other technology for you and your family? Please choose one of the following:

- We should buy new computers and other technology to play around with—we might never know what use it can be unless we try it out
- It depends on what the new computer or other technology is *needed* for
- When the new computer or other technology can *make life easier* it would make sense
- When the new computer or other technology can help us *save money* in the long run
- If and only when it's absolutely necessary

5. Who do you think will benefit and who might "lose" if we use computer technology to preserve you and your family's stories and share them with the next generation? Please choose one of the following:

- Everyone wins
- The Tribe and the next generation will benefit, but our elders and storytellers will lose a bit

- The families will benefit for sure, and no one will really lose
- Generally we all will win, but I feel sorry for the computer people who have to do all the work
- No one wins, or perhaps we will lose more than we hope to gain

6a. How do you feel about you and your family's stories being available on the Internet for everyone to hear?

6b. What about other aspects of Choctaw culture—like videos of dances, stickball games, singing, pottery or basket making, and other traditions?

7. If you had the right technology and knew how to use it, would you use it to listen to other stories and share your stories with others?

8. Are there particular people you feel should be in charge of cultural heritage preservation where technologies are involved? Do you have any concerns about this?

9. Do you think it is important that Tribal leaders know how you feel about this?

10. Do you think that Tribal leaders should be investing money in new computers or other technology for Choctaw cultural preservation? Why or why not?

11a. When you think about cultural heritage preservation, do you have concerns about how technologies might be used to preserve or share this?

11b. In terms of benefits or risks, do you have any concerns about what current Choctaw or future generations might lose or gain through use of technologies?

12. Tell me about your first experience with computer technology. (*added after the tenth interview*)

13a. Do you think that other Tribal members would feel the same way as you? Why or why not?

13b. Is there anything else we need to know about Choctaw culture and what the Tribe could be doing to preserve it using technology?

14a. Do you have a cell phone?

- 14b. How often do you use it?
- 15a. Do you own a computer?
- 15b. How often do you use it?
- 16a. Do you have the Internet in your home?
- 16b. How often do you use it?
17. What is your age range? Are you in your 20s, 30s, 40s, 50s, 60s, 70s, 80 or older?
18. What is your Choctaw blood quantum?
19. Do you have children? Grandchildren? Great grandchildren? How many of each?
20. Is your mother or father still living? Grandmother or grandfather?

APPENDIX B. INFORMED CONSENT SCRIPT

*Halito*⁷⁹. My name is Jake Dolezal, and I am an employee of the Choctaw Nation of Oklahoma in the Department of Tribal Research. I am also a graduate student at Syracuse University. Michelle Kaarst-Brown, my advisor and professor at Syracuse University, is supervising me in this research. We are inviting you to give your consent to participate in a research study. This is a research project in partnership between Syracuse University and the Chahta Foundation. Your participation will help the tribe decide how to preserve and share Choctaw cultural heritage using different kinds of computer technology.

Participation in this study is simple. I am going to read you a series of statements and ask you to respond to each one with your honest opinion. After some of the questions, I may ask you to tell me why you feel that way. You may ask for clarification or decline to answer any question. You may also stop the interview and/or withdraw from the study at any point during or after the interview without penalty to you. If you do, I will destroy all records of this interview and your participation.

This study is being conducted to benefit the Choctaw goals of overall wellness for all the Choctaw peoples. We have approval of the Chief and his trust that we will be honorable in our

⁷⁹ *Halito* is the Choctaw word for “Hello.”

efforts to understand Choctaw views about technology and cultural heritage preservation. Your participation will help the tribe decide appropriate and respectful ways to use computer technology to preserve and share the stories of tribal members and other elements of Choctaw cultural heritage. There is little to no anticipated risk to you because of your participation in the study, as any of your responses will be used without specific identification so that you will remain anonymous. I will do everything possible to insure your identity and participation in this study will be held completely confidential. By agreeing to participate, you must confirm that you understand this consent, you are 18 years old or older, you are member of the Choctaw Nation of Oklahoma, and you wish to participate. Do you agree?

[If the answer is "No"] I understand and respect your wishes. Be assured your decision will in no way affect your participation in Chahta's storytelling project or any other Chahta activities. We sincerely thank you for being involved. *[STOP]*

[If the answer is "Yes"] Thank you for your willingness to participate and allowing me to record your comments. If you have any questions, concerns, or complaints about the research, contact Dr. Michelle Kaarst-Brown from Syracuse University at (315) 443-1892 and David Wharton from the Choctaw Nation of Oklahoma at (580) 286-2600. If you have any questions about your rights as a research participant, or have questions, concerns, or complaints that you wish to address to someone other than the investigator, or if you cannot reach the investigator, you may contact the Institutional Review Boards at Syracuse University (315) 443-3013 and the Choctaw Nation of Oklahoma (918) 567-7000.

[If the interview is being conducted over the telephone.] Would you like me to mail you a copy of this consent for your records?

APPENDIX C. CODEBOOK USED FOR ANALYSIS

CLUSTERS CATEGORIES \	FEARFUL F	CONTROLLED C	REVERED R	DEMYSTIFIED D	INTEGRATED I
1. WHO SHOULD CONTROL HERITAGE ICT DIRECTION	F1 <i>e.g., “Don’t use it at all!”</i>	C1 <i>e.g., “Chief and the Council should”</i>	R1 <i>e.g., “those computer people should”</i>	D1 <i>e.g., “my family and I should”</i>	I1 <i>e.g., “we should work together”</i>
2. IMPORTANCE OF ICT TO PRESERVATION & SHARING	F2 <i>e.g., “not significant at all”</i>	C2 <i>e.g., “who is more important than what”</i>	R2 <i>e.g., “completely dependent on technology”</i>	D2 <i>e.g., “we need some way to do it”</i>	I2 <i>e.g., “important for some aspects but not all”</i>
3. VALUE OF ICT SKILLS AND KNOWLEDGE	F3 <i>e.g., “Not valuable, even threatening”</i>	C3 <i>e.g., “only if the Tribal leaders say so”</i>	R3 <i>e.g., “very valuable and important”</i>	D3 <i>e.g., “only those who don’t know the culture”</i>	I3 <i>e.g., “we should all know how”</i>
4. JUSTIFICATION FOR ICT INVESTMENT	F4 <i>e.g., “only if absolutely necessary”</i>	C4 <i>e.g., “to save money”</i>	R4 <i>e.g., “make life easier”</i>	D4 <i>e.g., “play around with”</i>	I4 <i>e.g., “depends on the need”</i>
5. BENEFICIARIES OF ICT (WINNERS OR LOSERS)	F5 <i>e.g., “no one wins”</i>	C5 <i>e.g., “everyone but the computer people”</i>	R5 <i>e.g., “everyone wins!”</i>	D5 <i>e.g., “our families will benefit for sure”</i>	I5 <i>e.g., “the Tribe and the next generation”</i>

Table V-5. Preliminary deductive codebook for analysis

APPENDIX D. IRB APPLICATION AND LETTERS OF SUPPORT

The following pages contain the application for exemption letters of support and approval that were secured through the Institutional Review Board process with both the Choctaw Nation of Oklahoma and Syracuse University.

EXEMPTED IRB#: _____
DATE REC'D
(For IRB Use Only)



**SYRACUSE UNIVERSITY
Institutional Review Board**

APPLICATION FOR DESIGNATION AS RESEARCH EXEMPT FROM IRB REVIEW

NOTE The Principal Investigator (PI) must be a person who holds a faculty appointment or other administrative position of Director or higher. If you have any questions regarding this IRB requirement call the IRB office at 315.443.3013 for guidance.

Principal Investigator/Faculty Member Information

First Name: Michelle	Middle Initial: L	Last Name: Kaarst-Brown
Title: Associate Professor and Director		
Department: Doctorate of Professional Studies	College: School of Information Studies	
Campus Address: 218 Hinds Hall		
Campus Phone : 315-443-1892	Fax : 315-443-6886	
Email: mlbrow03@syr.edu	Cell Phone (optional): 315-466-1122	

Student/Research Staff Information

<input type="checkbox"/> NA	
First Name: Jake	Last Name: Dolezal
<input checked="" type="checkbox"/> Graduate Student	<input type="checkbox"/> Undergraduate Student
<input type="checkbox"/> Other:	
Department: Doctorate of Professional Studies	College: School of Information Studies
Local/Campus Address: 323 N 7th Ave, Durant, OK 74701	
Local/Campus Phone: 580-380-3412	Fax: 580-924-0880
Email: jdolezal@choctawnation.com	Cell Phone (optional): 580-380-3412

TITLE OF PROPOSAL: The impact of cultural assumptions about technology on Choctaw heritage preservation

NOTE: Collaborative Institutional Training Initiative (CITI) is **not** required for research determined to be exempt. CITI is required for researchers involved in expedited or full board studies.

Figure D-1. Syracuse IRB application for exemption

1A. IS IT RESEARCH?

The definition of research as defined by the Department of Health and Human Services (DHHS) regulations: "Research means a *systematic investigation*, including research development, testing and evaluation, designed to develop or contribute to *generalizable knowledge*." 45 CFR 46.102 (d)

To be considered a "systematic investigation", the concept of a research project must:

- Attempt to answer research questions (in some research, this would be a hypothesis).
- Be methodologically driven, that is, it collects data or information in an organized and consistent way.
- Analyze data or information in some way, be it quantitative or qualitative data.
- Draw conclusions from the results.

A. Is your project a systematic investigation? Yes No

Please explain: The research project is an attempt to answer the research question, how might cultural assumptions about information and communication technologies (ICTs) impact their role in Choctaw heritage preservation? It will be methodologically driven by collecting data through consistent and organized interviews of Choctaw people. The project will also analyze the data we collect to look for patterns of cultural assumptions that fit a particular archetypal pattern, as theorized by Kaarst-Brown (1995). Finally, we will draw conclusions from this analysis that will hopefully inform us of practical conclusions that the Choctaw Nation can use to make decisions about the best way to go about using ICTs to preserve their culture (i.e., a preservation strategy) and be predictive that we might anticipate in advance how the community will feel and react to their sacred cultural heritage being captured and shared using ICTs.

"Generalizable knowledge" would include one or more of the following concepts:

- The knowledge contributes to a theoretical framework of an established body of knowledge.
- The primary beneficiaries of the research are other researchers, scholars and practitioners in the field of study.
- Publication, presentation or other distribution of the results is intended to inform the field of study.
- The results are expected to be generalized to a larger population beyond the site of data collection.
- The results are intended to be replicated in other settings.
- Web based publication for professional purposes.

B. Will your project contribute to generalizable knowledge? Yes No

Please explain: This project will contribute to generalizable knowledge by 1) expanding the theoretical use of the cultural patterns of assumptions about ICTs created by Kaarst-Brown (1995); 2) benefit both scholars and practitioners by identifying practical ways the Choctaw can use ICTs to preserve their cultural heritage and predict how the Choctaw people might react to their heritage being represented in ICTs; 3) publishing the results of this work in Dolezal's doctoral thesis; and 4) informing scholars and practitioners who work with other Native American tribes and indigenous populations about our findings that can be utilized in their settings.

Source: Kaarst-Brown, M. L. (1995). A Theory of information technology cultures: Magic dragons, wizards, and archetypal patterns (Doctoral dissertation). York University, Toronto, Canada.

If "yes" to question A. AND B. above the activity is considered research. Continue completing the application.

1B. IS IT HUMAN SUBJECTS RESEARCH?

- A. Is the data that is being obtained about living individuals? Yes No
- B. Are data collected through interaction or intervention with individuals (e.g., interviews, surveys, or any direct contact)? Yes No
- C. Is identifiable individual private information being obtained (e.g., chart reviews, information from data or tissue repositories)? Yes No
- D. Are data or specimens received by the investigator with identifiable private information? Yes No
- E. Are the data/specimens coded with a link back to the individual? Yes No

If "yes" to question A. above AND "yes" to one or more questions from B-E in section 1B, the activity is considered human research. Continue completing the application.

Protocols that do not meet the criteria for research AND human subjects research need not be submitted to the IRB for review or for a determination that the project falls into an exempt category.

Additional guidance for publicly available data:

Some research involves the analysis of data about humans for which the regulatory definition of "human subject" is not met. One example is research that involves only the analysis of de-identified data contained within publicly available datasets (available to any one regardless of occupation, purpose, or affiliation, and those individuals who are responsible for posting the dataset had legitimate access to the data and have employed the necessary mechanisms to ensure the privacy and confidentiality of the individuals about whom the data were collected).

While the activity described above meets the regulatory definition of research, the definition of human subject is not met because data about a living person is not obtained through interaction or intervention, and no private, identifiable information about a living individual is obtained.

2. CATEGORIES FOR EXEMPTION

I/We certify that the above research project involves human subjects only in one or more of the following categories, and will be carried out using standard methods. Please check the number next to category(ies) that is/are involved in the research.¹

- 1. Research conducted in established or commonly accepted educational settings, involving normal educational practices, such as:
 - (a) research on regular and special education instructional strategies, or
 - (b) research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods, and
 - (c) the research must not involve prisoners as participants
- 2. Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior unless:
 - (a) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and
 - (b) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.
 - (c) If the research involves children, the procedures must be limited to educational tests and observation of public behavior where the investigators do not participate in the activities being observed.
 - (d) The research must not involve prisoners as participants.
- 3. Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior that is not exempt under paragraph (2) of this section, if:
 - (a) the human subjects are elected or appointed public officials or candidates for public office; or
 - (b) federal statute(s) require(s) without exception that the confidentiality of the personally identifiable information will be maintained throughout the research and thereafter.
 - (c) The research must not involve prisoners as participants.
- 4. Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects. [Note: To qualify for this exemption ALL of the data, documents, records, or specimens must be in existence before the project begins.]
 - (a) The research must not involve prisoners as participants.
- 5. Research and demonstration projects which are conducted by or subject to the approval of department or agency heads, and which are designed to study, evaluate, or otherwise examine:
 - (a) public benefit or service programs;
 - (b) procedures of obtaining benefits or services under those programs;
 - (c) possible changes in or alternatives to those programs or procedures; or
 - (d) possible changes in methods or levels of payment for benefits or services under those programs.
 - (e) The protocol must be conducted pursuant to specific federal statutory authority.
 - (f) The protocol must have no statutory requirements for IRB review.
 - (g) The protocol must not involve significant physical invasions or intrusions upon the privacy interests of the participants.

¹ The Federal Regulations also include a sixth category for exempt research, the Institutional Review Board has the discretion to determine what categories to recognize and does not recognize research under category 6 as qualifying for exemption. If you have questions, please contact the IRB at 315.443.3013 or orip@syr.edu.

6. Taste and food quality evaluation and consumer acceptance studies a) if wholesome foods without additives are consumed or (b) if food is consumed that contains a food ingredient at or below the level and for a use found to be safe, or agricultural chemical or environmental contaminant at or below the level found to be safe by the Food and Drug Administration or approved by the Environment Protection Agency or the Food Safety and Inspection Service of the U.S. Department of Agriculture.

- (h) The protocol must have authorization or concurrence by the funding agency.
- (i) The research must not involve prisoners as participants.

3. SCREENING QUESTIONS

- | | | |
|--|------------------------------|--|
| A. Does any part of the research require that subjects be deceived? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| B. Will research expose human subjects to discomfort or harassment beyond levels encountered in daily life? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| C. Could disclosure of the subjects' responses outside the research reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| D. Will individuals involuntarily confined or detained in penal institutions be subjects of the study? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| E. For research proposed under category 2, will research involve surveys, interview procedures, or observation of public behavior with children where the researcher will interact with the children? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| F. For research proposed under category 4, will any of the data, documents, records, pathological specimens, or diagnostic specimens be collected or come into existence after the date you apply for exemption? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| G. For research proposed under category 4, will any of the information obtained from data, documents, records, pathological specimens, or diagnostic specimens that come from private sources be recorded by the investigator in such a manner that subjects can be identified directly or through identifiers linked to the subjects? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |

If you checked **YES** to ANY of the questions above, your research is **NOT EXEMPT**. Do not complete this application. Submit an [Application for IRB Expedited and Full Board Review](#).

If you have checked **NO** to ALL of the questions above, your research may be exempt. Please complete the remainder of the exempt application.

4. RATIONALE FOR EXEMPTION

Please briefly describe the proposed research and explain in clear language why you believe this research should be exempted from IRB review.

The proposed research is a systematic investigation into the cultural assumptions about information and communication technologies (ICTs) and identification of archetypal patterns of those assumptions (Kaarst-Brown, 1995, 2005; Kaarst-Brown & Robey, 1999) that may exist among the people of the Choctaw Nation of Oklahoma. These assumptions about technology--specifically, whether members of the tribe exhibit qualities of Revered, Controlled, Demystified, Integrated, or Fearful patterns as developed by Kaarst-Brown, 1999 and Kaarst-Brown and Robey (1999) will help the Tribe make informed decisions about how to appropriately use ICTs in their cultural heritage preservation efforts and predict what impacts or reactions tribal members might have to the ICTs. We believe this project should be exempted from IRB review, because it focuses simply on participants' attitudes and opinions of technology in regards to cultural preservation. We have devised a questionnaire as the basis for an interview that will be the same for every participant. Other than basic demographic information like age, gender, Choctaw blood quatum, and town of residence, we will not ask any identifiable information about our participants. The interviews will be conducted in confidence and private, either over the telephone or face-to-face. There is little to no potential harm that could come to our participants, because 1) their participation will be confidential; 2) we will retain no personally-identifiable data about our participants; and 3) we will only ask questions that simply ask their opinion of statements about technology and

Version Date 11/29/10

5

by purposefully avoiding questions that introduce value statements or ask them to reveal their feelings about the tribe, its leadership, or other members of the tribe.

5. RECRUITMENT

Describe plans for recruitment and how contact will be made:

The Chahta Foundation—a 501(c)3 non-profit organization affiliated with the Choctaw Nation of Oklahoma—is conducting an effort that will digitally capture stories from tribal members. Their effort involves inviting tribal members to a mobile recording booth and asking them to recount, with a member of their family present, some event or account of significance to their life as a Choctaw. The foundation has asked the researcher, Dolezal, to conduct the proposed research study as a part of their recording effort. The story telling process not only engages the storyteller, but also encourages multi-generational family members to attend and participate in the recording of the stories, as observers and questioners. This implies that they support to some extent the use of at least video or audio technology in cultural heritage preservation, but this does not include dissemination using more advanced communication technologies. Video and audio recording are older, more established technologies and, like photography, may be more accepted than computer technologies. By the end of 2012, the Chahta Foundation plans to record the stories of 25 or more individuals. According to the 2010 U.S. Census, the average Choctaw family has three children. If that estimate were to hold with this population, the potential research pool of participants is upwards of 325 people or more (estimating the storyteller, her three children, and nine grandchildren.) Our sampling strategy will be to put all the names of storytellers and her family members that are 18 and older in a pool and randomly select them. We will continue to select random participants and conduct interviews until we begin to see repetitive answers, i.e., no unique data emerge from the interviews. The use of a random sample from this population suggests that we will engage people who are may or may not be favorably disposed to the use of more advanced computing technologies such as digital libraries and social media to disseminate Choctaw cultural images or stories. Whether participants were story tellers or family members, this group will provide insights into attitudes toward ICTs in Choctaw cultural heritage preservation and sharing. After potential participants are selected, I will contact and introduce myself to them. I will read them the informed consent script. If they decline, I will withdraw them from consideration for the study. If they agree, I will conduct the interview. I have attached the script I will use for recruitment.

Will your subjects be recruited through schools, employers, and/or community agencies or organizations, and/or are you required to obtain permission to access data that is not publicly available? If the answer is yes, provide a letter of support from the person authorized to give you access to the subjects or to the data in question. More than one letter may be required.

- Does not apply
- Letter(s) attached

Comments:

The Chief of the Choctaw Nation of Oklahoma, Gregory E. Pyle, is the highest ranking executive leader of the Tribe and is duly elected by its members. Chief Pyle has sworn to uphold what is in the best interest of the Tribe and its members. Stacy Shepherd is the Director of the Chahta Foundation and appointed by their Board of Directors. Her letter invites and authorizes me to conduct this research as a part of their storytelling project on behalf of her board.

Will this research be conducted in a school or is it funded by the US Department of Education?

No. (Skip to Section 5)

Yes. If yes, complete the form found at:

<http://orip.syr.edu/files/Research%20Sponsored%20by%20the%20US%20Department%20of%20Education%20and-or%20Conducted%20in%20Schools.doc>

6. METHODS

Provide a detailed description of what participants will be required to do.

Our goal is two-part: both to validate the "IT Culture" instrument developed by Kaarst-Brown based on the "IT Culture" patterns/archetypes and to develop deeper understanding of Choctaw views of ICT's that might be used to support cultural heritage preservation. In this study, research participants will be asked to respond to questions on the attached questionnaire. The questionnaire consists of statements about information and communication technology and Choctaw people. The questionnaire asks them to select one of five predetermined options for the initial set of questions. Participants will then be asked to explain their choices so that we can develop a deeper understanding and validation of whether or not the instrument actually addresses the research question rather than a peripheral issue.

Will this research be conducted by SU investigators in foreign countries?

No.

Yes. An additional form related to international research must be completed and submitted with this Application: [International Research Appendix](#).

NOTE: All research measures which will be used during this study including sample questions, questionnaires, recruitment scripts, etc. must be included with the application.

7. INFORMED CONSENT REQUIREMENT

(This is not required for Category 4)

Please provide a copy of the written informed consent document, or oral consent script, which you will use in your study. Please note this document must include the following minimum required elements:

1. A statement that clearly explains that the study is research. The purpose of the research should be described in lay language, avoiding the use of technical terms and using language appropriate to the targeted subject group.
2. A statement that describes what procedures will be followed, clearly explaining what participation in the study will involve.
3. It must be clear that participation is voluntary and participants can withdrawal from the study at any time without penalty.
4. Contact information for the investigator.
5. For adult participants, a statement that the subject is 18 years or older must appear as part of the consent.

8. SIGNATURES

This is to acknowledge that I take full responsibility for the conduct of the research. **Investigators of studies exempt from IRB review are responsible for the ethical conduct of research and obtaining informed consent when appropriate.** (If this study is being conducted by a student, a faculty member must sign in the space provided).

Signed:  Date: 6/13/2012
(Faculty member)

Name (printed): Michelle Kaarst-Brown

Version Date 11/29/10

Signed: Jake A. Dolezal Date: 6/13/2012
(Student, if applicable)

Name (printed): Jake A. Dolezal

Graduate Undergraduate

Preferred mailing:

- Hard copy campus mail. All correspondence mailed to the PI/Faculty member's address.
- Email notification

RETURN **ONE** COPY OF THE COMPLETED APPLICATION TO:

SYRACUSE UNIVERSITY
INSTITUTIONAL REVIEW BOARD
Office of Research Integrity and Protections
121 Bowne Hall
Syracuse, New York 13244-1200
Phone: 443-3013
Fax 443-9889
orip@syr.edu



Choctaw Nation of Oklahoma

P.O. Box 1210 • Durant, OK 74702-1210 • (580) 924-8280

Gregory E. Pyle
Chief

Gary Batton
Assistant Chief

March 23, 2011

Tracy J. Cromp
Syracuse University
Office of Research Integrity and Protections
121 Bowne Hall
Syracuse, NY 13244-1200

RE: IRB Application of Jake A. Dolezal

Ms. Cromp,

As Chief of the Choctaw Nation of Oklahoma, I hereby authorize my employee, Jake A. Dolezal, to conduct research involving human subjects within the tribal organization in accordance to Federal Regulations (CFR 46, Title 45) and the Belmont Report. His work may include both Tribal employees and members, so long as the Institutional Review Board approves or exempts his application and his research complies with all policies and procedures for the protection of human subjects.

I appreciate your time and consideration in this matter.

Sincerely,

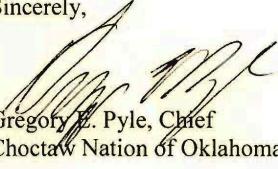

Gregory E. Pyle, Chief
Choctaw Nation of Oklahoma

Figure D-2. Research support letter from the Honorable Gregory E. Pyle, Choctaw Chief



Empowering Choctaw Life

March 29, 2012

Tracy J. Cromp
Syracuse University
Office of Research Integrity and Protections
121 Bowne Hall
Syracuse, NY 13244-1200

RE: IRB Application of Jake A. Dolezal

Ms. Cromp,

As Director of the Chahta Foundation and on behalf of the Board of Directors, I have invited Jake A. Dolezal to conduct research in conjunction with our Choctaw cultural heritage preservation efforts, so long as you approve or exempt his application and insure that his research complies with all policies and procedures for the protection of human subjects in accordance to Federal Regulations (CFR 46, Title 45) and the Belmont Report. His work will be of great help to us as we decide on respectful and appropriate ways to preserve and share elements of Choctaw heritage using technology.

I appreciate your time and consideration in this matter.

Sincerely,

Stacy Shepherd
Director

www.chahtafoundation.com phone 580-924-8280 fax 580-924-0880 address PO Box 1849 Durant, OK 74702

Figure D-3. Research invitation letter from Stacy Shepherd, Director of the *Chahta* Foundation



SYRACUSE UNIVERSITY
Institutional Review Board
MEMORANDUM

TO: Michelle Kaarst-Brown
DATE: June 18, 2012
SUBJECT: **Determination of Exemption from Regulations**
IRB #: 12-170
TITLE: *The Impact of Cultural Assumptions About Technology on Choctaw Heritage Preservation*

The above referenced application, submitted for consideration as exempt from federal regulations as defined in 45 C.F.R. 46, has been evaluated by the Institutional Review Board (IRB) for the following:

1. determination that it falls within the one or more of the five exempt categories allowed by the organization;
2. determination that the research meets the organization's ethical standards.

It has been determined by the IRB this protocol qualifies for exemption and is assigned to category 2. This authorization will remain active for a period of five years from **June 15, 2012** until **June 14, 2017**.

CHANGES TO PROTOCOL: Proposed changes to this protocol during the period for which IRB authorization has already been given, cannot be initiated without additional IRB review. If there is a change in your research, you should notify the IRB immediately to determine whether your research protocol continues to qualify for exemption or if submission of an expedited or full board IRB protocol is required. Information about the University's human participants protection program can be found at: <http://orip.syr.edu/human-research/human-research-irb.html>. Protocol changes are requested on an amendment application available on the IRB web site; please reference your IRB number and attach any documents that are being amended.

STUDY COMPLETION: The completion of a study must be reported to the IRB within 14 days.

Thank you for your cooperation in our shared efforts to assure that the rights and welfare of people participating in research are protected.

A handwritten signature in black ink, appearing to read "Tracy J. Cromp".

Tracy Cromp, M.S.W.
Director

Note to Faculty Advisor: This notice is only mailed to faculty. If a student is conducting this study, please forward this information to the student researcher.

DEPT: Information Studies, 208 Hinds Hall

STUDENT: Jake Dolezal

Office of Research Integrity and Protections
121 Bowne Hall Syracuse, New York 13244-1200
(Phone) 315.443.3013 ♦ (Fax) 315.443.9889
orip@syr.edu ♦ www.orip.syr.edu

Figure D-4. Research protocol approval letter from the Syracuse University IRB



CHOCTAW NATION OF OKLAHOMA
Institutional Review Board

GREGORY E. PYLE
Choctaw Chief

GARY BATTON
Assistant Chief

OHRP FWA Number: 00001128
OHRP IRB Number: 00004293

Sylvester Moore
Chairman

Mickey Peercy
Federal-Wide
Assurance
Institutional Officer

July 26, 2012

Jake Dolezal
Choctaw Nation of Oklahoma
324 N Washington Ave
Durant, Ok 74701

**RE: The Impact of Cultural Assumptions about Technology on Choctaw Heritage
Preservation**

CNO IRB Protocol Number: **12-0158**
Protocol Exemption Date: **July 9, 2012**

NOTIFICATION OF EXEMPT RESEARCH DETERMINATION

Dear Mr. Dolezal:

The Choctaw Nation of Oklahoma Institutional Review Board (CNO IRB) has, on **July 9, 2012**, reviewed the above referenced research protocol. Based on the information provided, this protocol was deemed to be **exempt research** in accordance with criteria of the CNO IRB; the guidelines set forth in 45 CFR 46; and the principles of the Belmont Report, for the protection of human research participants. It is the expectation of the CNO IRB that the rights and protection of the individuals who may be asked to participate in this study will be respected.

As principal investigator of this protocol, it is your responsibility to insure this study is conducted as presented, and to submit any protocol modifications to the CNO IRB promptly to assure the research protocol is eligible to remain in an exempt status. All research study related records, including copies of signed consent forms, should continue to be retained in a manner consistent with the intent of the Health Information Portability and Accountability Act (HIPAA), for a minimum of three (3) years following the termination date of the research project.

You, as the Principal Investigator, along with your sponsoring institution, are accountable to insure that this research protocol is carried out in a legal, moral, and ethical manner. **Failure to do so, will jeopardize, not only your research protocol, but any and all protocols supported by your sponsoring institution, and active with the Choctaw Nation of Oklahoma Institutional Review Board.**

Figure D-5. Research protocol approval letter from the Choctaw Nation IRB

The CNO IRB does reserve the right for editorial review and comment on any material to be published, and should be notified well in advance of any intent to publish material related to this research. It is your responsibility to allow the CNO IRB at least 20 days for this review, and approval must be obtained prior to submission of the material for publication.

Any modifications to the procedure or consent process of this protocol need to be sent to our office in time to be reviewed and approved at the next convening meeting of the CNO IRB. If you have questions concerning these procedures or need any additional assistance, please contact David Wharton, CNO IRB Scientific Co-Chair at 580-286-4724 or dfwharton@cnhsa.com; or Dannielle Branam, CNO IRB Administrative Director at 918-302-7317 or debranam@cnhsa.com.

Sincerely,



Sylvester Moore
Community Co-Chair
Choctaw Nation of Oklahoma Institutional Review Board

Protecting Our People and Our Heritage

One Choctaw Way • Talihina, OK 74571 • 918-567-7000 Ext.6839 • 800-349-7026 Ext.6839

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- Zhang, P. (2007). Toward a positive design theory: Principles for designing motivating information and communication technology. In D. Cooperrider & M. Avital (Eds.), *Advances in Appreciative Inquiry* (Vol. 2, pp. 45–74). Bingley, UK: Emerald.

JAKE A. DOLEZAL
CURRICULUM VITAE

PERSONAL

Home Address: 323 North Seventh Avenue
Durant, Oklahoma 74701

e-Mail Addresses: jdolezal@choctawnation.com
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EDUCATION

Degrees

Doctor of Professional Studies
Syracuse University, Syracuse, New York, 2010-2013
Information Management, GPA 3.96

Master of Technology
Southeastern Oklahoma State University, Durant, Oklahoma, 2000-2002
Computer Information Systems, GPA 4.00

Bachelor of Science
Southeastern Oklahoma State University, Durant, Oklahoma, 1995-1998
Physics, Minors: Mathematics and Technology, GPA 3.88, *Summa Cum Laude*

Diploma
Durant High School, Durant, Oklahoma, 1995

Other

Coursework in Mechanical Engineering
Oklahoma State University, Stillwater, Oklahoma, 1998

SELECTED PUBLICATIONS

Dolezal, J. A. (2013). *The Impact of Cultural Assumptions About Technology on Choctaw Cultural Heritage Preservation and Sharing*. (Doctoral Dissertation). Syracuse University, Syracuse, New York.
(forthcoming)

Dolezal, J. A. (2013). Making BI Matter: Getting Your Chips on the Executive Table. *Information Management*. <http://www.information-management.com/news/making-bi-matter-getting-your-chips-on-the-executive-table-10023959-1.html>

Kaarst-Brown, M. L., & Dolezal, J. A. (2012). *Chahta Sia “I am Choctaw”*: Using images as a methodology for cultural and technological discourse. In F. Sudweeks, H. Hrachovec, & C. Ess (Eds.), *Proceedings of the Cultural Attitudes Towards Technology and Communication (CATaC)*. Aarhus, Denmark.

Dolezal, J. A. (2011). New Paradigms in Native American Social and Behavioral Intervention Research. *SBE 2020: Future Research in the Social, Behavioral & Economic Sciences*. National Science Foundation. Retrieved from
http://www.nsf.gov/sbe/sbe_2020/submit_detail.cfm?upld_id=87

Dolezal, J. A. (2002). *Implementing an Enrollment Management Information System for Recruitment to Report and Predict Enrollment Outcomes in Higher Education*. (Master's Thesis). Southeastern Oklahoma State University, Durant, Oklahoma.

LECTURESHP

Pepperdine University, Malibu, California

Doctoral Dissertation Committee Member, Crystal C. Jensen, *Native American Women Leaders Utilization of Information and Communication Technology (ICT) for Work-Life Balance and Capacity Building*, 2013

Harvard University, Cambridge, Massachusetts

Tribal Liaison and Research Project Supervisor, Native American Program, 2011-Present

Southeastern Oklahoma State University, Durant, Oklahoma

Adjunct Instructor, Department of Physical and Computer Sciences, 2001-2010

Guest Lecturer, Department of Behavioral Sciences, 2007-2009

U.S. Department of Education TRIO Program Instructor, Upward Bound Program, 2003

Continuing Education Instructor, Office of Continuing Education, 2001-2003

PROFESSIONAL EXPERIENCE

Advospire LLC, Dallas, Texas, 2013-Present

Vice President

Choctaw Nation of Oklahoma, Durant, Oklahoma, 2006-Present

Senior Director, Tribal Research

Southeastern Oklahoma State University, Durant, Oklahoma, 1999-2006

Programmer/Analyst, Office of Administrative Computing

Independent Consultant and Web Developer, 2003-2006

Durant Independent School District, 2004-2006

<http://www.durantisd.org/>

Pregnancy Center of Bryan County, 2003

PRESENTATIONS

Reorganizing the structure of the Choctaw Nation of Oklahoma

Organizational Structure Committee Executive Sessions, Choctaw Nation Casino, Durant (Oklahoma), March 2013

The Impact of Cultural Assumptions About Technology on Choctaw Cultural Heritage Preservation and Sharing

Doctoral dissertation defense, Syracuse University, Syracuse (New York), March 2013

Current Status of Tribal Research's Project Milestone

Information Management Committee, Choctaw Nation Headquarters, Durant (Oklahoma), March 2013

Education and Career Service Successes and Their Impact on Employment within the Choctaw Nation

Tribal Council, Choctaw Nation Council Chambers, Tuskahoma (Oklahoma), February 2013

Education and Career Service Successes and Their Impact on Employment within the Choctaw Nation

Executive Session, Choctaw Nation of Oklahoma, Durant (Oklahoma), January 2013

Return on Vision and Information Management at the Choctaw Nation

Executive Session, Choctaw Nation of Oklahoma, Durant (Oklahoma), November 2012

The Impact of Cultural Assumptions About Technology on Choctaw Cultural Heritage Preservation and Sharing.

Doctoral Dissertation Proposal, Syracuse University, Syracuse (New York), September 2012

Chabta Sia ‘I am Choctaw’: Using images as a methodology for cultural and technological discourse

Cultural Attitudes Towards Technology and Communication (CATaC) conference, Aarhus (Denmark), June 2012 and Doctorate of Professional Studies Residency, Syracuse University, Syracuse (New York), September 2011

Outcome-based Performance Measurement at the Choctaw Nation

Executive Session, Choctaw Nation of Oklahoma, Durant (Oklahoma), May 2012

Project Milestone: Implementing a Data Warehouse for Choctaw Nation Social and Educational Services

Tribal Council, Choctaw Nation of Oklahoma, Durant (Oklahoma), December 2011

Quality of Life at the Choctaw Nation

Harvard University Native American Program, Cambridge (Massachusetts), May 2011

GRANTS

Funded Projects, \$2,282,561

Community Oriented Policing Services Hiring Recovery Program Grant, \$114,998

United States Department of Justice
City of Calera, Oklahoma, 2011

Local Law Enforcement Justice Assistance Grant, \$11,344 *total*

Oklahoma Attorneys Council
City of Calera, Oklahoma, 2010 and 2012

Tribal Transit Program Capital Expansion Grant, \$610,324

United States Department of Transportation
American Recovery and Reinvestment Act of 2009
Social Services, Choctaw Nation of Oklahoma, 2009

Tribal Transit Program Continuation Grant, \$165,583

United States Department of Transportation
Social Services, Choctaw Nation of Oklahoma, 2009

Community Oriented Policing Services Hiring Recovery Program Grant, \$114,998

United States Department of Justice
American Recovery and Reinvestment Act of 2009
Tribal Law Enforcement, Choctaw Nation of Oklahoma, 2009

Community Oriented Policing Services Tribal Resources Grant, \$350,525

United States Department of Justice
Tribal Law Enforcement, Choctaw Nation of Oklahoma, 2009

Community Oriented Policing Services Secure Our Schools Grant, \$92,000

United States Department of Justice
Jones Academy, Hartshorne, Oklahoma, 2009

Adult Education and Literacy Program Grant, \$198,617

Oklahoma State Department of Education
Adult Education, Choctaw Nation of Oklahoma, 2009

Local Law Enforcement Justice Assistance Grant, \$7,620

Oklahoma Attorneys Council

City of Calera, Oklahoma, 2009

The Harvard Project on American Indian Economic Development, \$20,000 and *High Honors*

Harvard University

Project *Falummichbi*, Healthy Lifestyles, Choctaw Nation of Oklahoma, 2008

Community Oriented Policing Services Tribal Resources Grant, \$227,324

United States Department of Justice

Tribal Law Enforcement, Choctaw Nation of Oklahoma, 2008

Community Oriented Policing Services Universal Hiring Program Grant, \$300,000

United States Department of Justice

Tribal Law Enforcement, Choctaw Nation of Oklahoma, 2008

Community Oriented Policing Services Tribal Resources Grant, \$211,178

United States Department of Justice

Tribal Law Enforcement, Choctaw Nation of Oklahoma, 2007

PROFESSIONAL ACTIVITIES

Choctaw Nation of Oklahoma, Durant, Oklahoma

Member, Organizational Structure Committee, 2013-Present

Co-Chair, Information Management Committee, 2012-Present

Co-Chair, Information Technology Committee, 2007-2008

Member, Talent Management Committee, 2010-Present

Pregnancy Center of Bryan County, Durant, Oklahoma

Board Member and Media Committee Chair, 2004-2007

Southeastern Oklahoma State University, Durant, Oklahoma

President, Southeastern Staff Association, 2004-2006 (*elected for two terms*)

Appointed, Centennial Committee, 2006

Appointed, Institutional Assessment Committee, 2003-2004

Appointed, President's Task Force on Student Retention, 2002-2003

PROFESSIONAL DEVELOPMENT

Choctaw Nation of Oklahoma, Durant, Oklahoma

Hawaiian International Conference of System Sciences 45, 2012

Data Analytics Summit, The Data Warehouse Institute (TDWI), 2011

WebFocus Developer Training, 1.2 CEUs, Information Builders, 2010

Transit Grant Training, Oklahoma Department of Transportation, 2009

Adult Education and Literacy Training, Oklahoma State Department of Education, 2009

Grant Writing Workshop, Zocklein and Associates, 2008

Southeastern Oklahoma State University, Durant, Oklahoma

OpenVMS Alpha Programming I, Parsec Group, 2002

South Central POISE Users Group Conference, annually 2001-2006

Jenzabar PX Advanced Programming, Degree Audit, and Financial Aid Systems, Educational Systems Products, 2001-2004

CompTIA A+ Certification, SOSU Continuing Education, 2000

ACADEMIC HONORS

Southeastern Oklahoma State University, Durant, Oklahoma

Graduated, *Summa Cum Laude*, 3.88 GPA, 1998

President, Society of Physics Students, 1997-1998

Member, Alpha Chi National College Honor Scholarship Society, 1997-1998

Member, Blue Key National Honor Society, 1997-1998

Member, Who's Who Among Students in American Universities and Colleges, 1997-1998

Recipient, Oklahoma State Board of Regents for Higher Education Scholarship, 1995-1998