THE SOCIOCULTURAL FACTORS THAT INFLUENCED THE SUCCESS OF NON-TRADITIONAL, LATINA, PRE-SERVICE TEACHERS IN A REQUIRED ONLINE INSTRUCTIONAL MEDIA AND TECHNOLOGY COURSE

by

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B.A., Texas Tech University, 1993
M.A., Texas Tech University, 2002

AN ABSTRACT OF A DISSERTATION

submitted in partial fulfillment of the requirements for the degree

DOCTOR OF PHILOSOPHY

Department of Curriculum & Instruction
College of Education

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Manhattan, Kansas

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Abstract

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Four of the five sociocultural factors explored in this study; generational status, educational attainment, socioeconomic status, and gender roles appeared to influence the success of Hispanic, non-traditional pre-service teachers enrolled in the required online instructional media and technology course. Only one of the factors, English language ability, did not appear to have any direct influence on the success of these particular students. Although many of the students struggled with conventional use of English and this undoubtedly influenced their success in other courses, it did not inhibit their success in the on-line media and technology course. Participants were most expressive in their personal interviews about the influence of gender roles, both as a motivator and an inhibitor of success.

These sociocultural factors also influence one another, particularly as generational status influences, English language ability, educational attainment, gender roles, and ultimately socioeconomic status. Socioeconomic status, in turn, highly influences computer ownership and Internet access which leads to reduced familiarity with computer and technology terminology, prior experience with computers, and the participant's perceived self-efficacy in using computer technology for teaching. These factors all then influence the digital divide and the gaps that exist between Hispanics and other racial / ethnic groups.

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Table of Contents

List of Tables

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Dedication

To my family. For facing all the obstacles, continuing to seek opportunities and having a faith that can move mountains. I am truly blessed.

Chapter 1 - Introduction

Home computer ownership and Internet access have become essential to education, job security and economic opportunity. Computers and Internet technologies allow people to access information quickly, in many cases instantaneously from all over the world via the world-wide-web. The Internet has grown exponentially, and gained many uses since the Internet's first use by the government for interagency communication. In 1990, the Internet exploded into the public sector as uses and benefits became identified; and by 1995 independent businesses and organizations began to run and direct the Internet for commercial and economic use (Stewart, 2009). "The Internet is one of the youngest and fastest growing media in the world. Its growth is still accelerating at a rate of about 7.3 million pages per day, doubling every eight months (Killmer & Koppel, 2000 p.7). In the same article, the authors believed that the Internet had not yet reached its highest period of expansion. In today's fast paced society, we use the Internet as a tool to provide access to information, knowledge and for economic power. Due to the rapid rise in home computer ownership and its perceived potential, the U.S. Census Bureau, population division began keeping statistics on home computer use and ownership. They did so in an effort to track the rate at which people began purchasing and using home computers in 1984 and statistical data on Internet access in 1997 (U.S. Census, 2008).

By the 21st century, computer use has become such an integrated part of U.S. society for teaching, learning and entertainment that some researchers have dubbed it the "new information society" (Wilson, 2003). Just about anything can be done from a computer from checking your bank balance, paying your bills online, completing college courses, to potentially programming your refrigerator to send a list of grocery items while you are at the store to a portable computer with wireless Internet access; that is, if you have these technologies available and know how to use them. Information technologies are a convenience to those who have and can afford them.

However, there is a concern that citizens who are lacking computer skills and access will be left behind in our new economy (Wilson, 2003). Typically the people left behind during rapid change in society are those who do not have access and are less educated and poor; hence the growing gap called the digital divide (Edwards, 2005; Edutopia, 2006; Wilhelm, 2004). The 2000 Census found that although about half of all United States homes had computers, households with lower incomes were much less likely to own computers than were higher

income households. The digital divide is a term created during the 1990's to identify the issue of inequitable access to technology (Gorski, 2002). This inequality is manifested in economic, ethnic, gender and social stratification (Cooper, 2000; Edwards, 2005; Edutopia, 2006; Wilhelm, 2004).

In the twenty years since the digital divide was acknowledged, much research has been conducted on the role of education and socio-economic status in computer ownership and Internet access among racial groups (Kominski & Newberger, 1999). A large gap remains between African-American and Hispanic groups when compared to non-minority groups. Multiple studies have been conducted on the economic and education levels of Hispanic and African-American communities and its relationship to the ownership of computers and access to the Internet (Cooper, 2000; Fairlie, 2004; Goslee, 1998; Kominski & Newburger, 1999; Larrison, Nackerud, Risler, & Sullivan, 2002; Menard-Warwick, & Debach, 2004; NTIA, 2002; Roblyer, 2000; USDC, 2000; Wilhelm, 2004). Although a great deal of information has been gathered about the educational and economic patterns that drive home computer ownership and Internet access, little is known about the role of culture as an issue of the digital divide. By 2002, researchers found that although access to technology for Hispanics and African-Americans had steadily increased in the 1990's, they were still less likely to own computers than Whites (Fairlie, 2004).

Statement of the Problem

The role that culture plays in the digital divide has not yet been fully explored. Latinos are the fastest growing minority group in the U.S., yet they lag behind in home computer ownership and Internet access. Research has widely shown that socio-economic factors do contribute to the lack of access and use among Hispanic and African-American communities, yet these factors cannot fully explain this difference between racial and ethnic groups (Larrison, et.al, 2002, LaRose and Metler, 1989). Several researchers have implied that factors, other than education and economics, are related to the gap between Hispanic computer ownership and Internet access and other racial and ethnic groups. They were unable to clearly identify the relationship as socio-cultural, "different data sources document large racial differences in rates of computer ownership and Internet use; we know very little about the underlying causes of these

differences" (Fairlie, 2004,p.13), (Goslee, 1998; Kominski and Newberger, 1999). These underlying causes have yet to be identified in the research literature.

Educational settings, such as public schools, play a role in the availability and access to computer technologies for school age children. In a study conducted by Kupperman and Fishman (2002) in which students brought home a NetTV system that allowed access to the Internet via a television set, the parents [adult users] were not as receptive to the technology as their school age children. In a section of the study titled *Language and Culture*, Kupperman and Fishman stated that, "…it is hard to know how much language [Spanish was the primary language of the parents] and content was a factor [for the adults]" (p.13). The same study indicated, due to the work schedules and occupations of the parents in the study, Latino parents were limited in their access and use of the equipment. The role of culture in the digital divide has yet to be identified (Kupperman & Fishman, 2002). Defining and identifying the sociocultural factors that play a role in home computer ownership and Internet access for Hispanics will aid in finding ways to close the gap in the digital divide for this group.

Identification of Hispanic/Latino groups

In attempting to identify Hispanic and/or Latino groups, the definitions can be difficult; due to an individual's personal preference in identity by race and ethnicity, there are few inclusive definitions. Therefore, although the participants in the study group are all Mexican-American, for the purpose of this study, the terms Hispanic and Latino/a are used interchangeably to provide continuity with the research literature.

Hispanic and Latino(a) refer to a group of Americans who share a language and common cultural origins but who come from diverse nations and backgrounds with distinctive histories and socio-economic and political experiences (Brown, Santiago & Lopez, 2003). The three largest Hispanic subgroups in the United States are Mexican-Americans, Puerto Ricans, and Cuban-Americans, but the number of immigrants from Central and South America has been growing quickly over the last 15 years. These subgroups are concentrated in different parts of the United States; their economic circumstances vary as does the timing and causes of their immigration. As diverse as this population is, so are the many strengths and needs of the Latino student population (p.41).

Defining the term socio-cultural, or sociocultural, is another problematic issue. Sociocultural is a relatively recent term and there are several definitions that incorporate the same ideas within the social sciences. Anthropology and sociology agree that different cultures have various beliefs, values, manners, normative behaviors, and practices but have varying terms for identifying these patterns. For this study, the definition of sociocultural comes from the field of anthropology as defined by Dr. Richard Wilk at Indiana University. Wilk (2009) defines sociocultural anthropology as the current concepts and issues in the study of culture including, but not limited to: "economics, ecology, kinship, life cycle, education, social stratification, political organization, religion, values, culture change, evolution, methodology, etc…"(p.3). For further clarity this study includes the definition for a Chicana epistemology as defined by Delores Delgado Bernal (2002) to include the voice of the female participants. Bernal insists it is important to identify "the commonalties of women's experience and examine how family backgrounds, school practices, male privilege, and class and ethnic discrimination shape Chicanas' educational experiences and choices" (p.105)

As sociocultural factors can encompass any behavior or belief found in a society and due to the ever changing patterns within a living society, for the purpose of this study, and to provide an operational definition, the sociocultural factors investigated include:

- Generational status
- English language ability
- Educational attainment
- Socioeconomic status
- Gender identity

These factors, individually or in combination, may contribute to the low rates of computer ownership and Internet access for Latinos. Other issues interconnected to these socioeconomic factors appear to be the amount of time available for participation in coursework, time required to be able to utilize the new computer technology content, and time to gain proficiency with computer terminology and application skills (Childers 2003; Resnick, 2001; Roblyer, 2000; USDC, 2000).

Location or place of residence also relates to sociocultural factors and may contribute to

issues of online access or availability for people living in rural locations. In addition to physical location as an issue for online access, location and lack of access to a local university make a college education unavailable to people who are place-bound. Place-bound is defined as perceived difficulty in leaving the immediate geographic area to attend school (Shields, 2004). Sociocultural factors obviously influence being place-bound. In the Shields (2004) study, the perception of being needed at home, feelings of abandoning one's family and the insecurity about moving away from home were the indicators for being place-bound. In this study the participants are bound by family and financial obligations that do not allow them to leave home to attend college.

For Hispanic people, ownership of computer equipment and Internet access is the catalyst to entry into the Information Age and access to education. Little is known about the impact of sociocultural factors. This study assists in filling the gaps in the literature by investigating the impact that sociocultural factors have on Latina, non-traditional pre-service teachers in a required online instructional media and technology course.

Context

The setting for this study is the southwestern region of Kansas. In general the western counties in the state are the less populated and more diverse compared to the rest of the state. Given the rural nature of the area, post-secondary education and occupational opportunities are limited. The participants in this study were part of the *AccessUS*, program developed in 2007 at Kansas State University, with support from the Kansas Board of Regents, to provide teacher education programs in southwest Kansas. The *AccessUS* teacher education program was part of a larger initiative at Kansas State University, the *Equity and Access* project, a Teacher Quality Enhancement grant funded through the U.S. Department of Education, initiated in 2003 to design, implement, evaluate, institutionalize, and disseminate a multi-institutional collaborative teacher preparation model to address the continuum of teacher development and recruitment, through undergraduate preparation, early career induction and continued professional growth.

Considering the location of the participants and the 300 mile distance between Southwest Kansas and Kansas State University, video teleconferencing technology was the main method for providing student access to the teacher education curriculum. The *Access US* teacher education program required students to complete an online instructional media and technology course,

identified as DED 318 in the course catelog. It was a 16-week course in which students and instructors met for approximately two hours bi-weekly via the teleconferencing system.

Participants in this study were recruited from high schools, school districts, and community colleges in the southwestern region of the state as part of the *Equity and Access Project*. All participants were seeking a Bachelor of Art in elementary education with an endorsement in English as a Second Language. The majority of those recruited were Latina, non-traditional, bilingual community college students who were place-bound (Sheilds, 2004) and had been working as full-time paraprofessionals assisting with English as a Second Language Learners (ELLs) in various grade-level classrooms in the local school districts.

Research Design

This study used a naturalistic exploratory case study design as the method of inquiry. Naturalistic inquiry allows for inclusion of the participant's thoughts, beliefs and interpretations of the phenomenon being studied, as this is the environment in which they live (Lincoln & Guba, 1985). Additionally, the Chicana feminist epistemology for educational research was used as the cultural lens through which the data were analyzed. Chicana feminist epistemology is grounded in Latina Critical Race Theory (LatCrit). It adds to the foundation of perspectives unique to Latinas by "going beyond the commonalties of women's experience and examine how family backgrounds, school practices, male privilege, class and ethnic discrimination shape Chicanas' educational experience and choices", Bernal (1998).

Purpose of the Study

The purpose of the study was to gain understanding and insight into the sociocultural factors influencing the digital divide as related to Latinos as a group, specifically a group of non-traditional, Latina pre-service teachers from Southwestern Kansas in a required online instructional media and technology course. In prior studies, factors such as education and economics have been shown to affect the use and ownership of computers, particularly by the Hispanic population (Kominski, 2000; Larrison, et.al, 2002; NTIA, 2002; Stanley, 2002; USDC, 2002). Yet, as the cost of computer equipment decreases and availability of Internet access increases, Hispanics are still less likely than other racial, ethnic groups to own a home computer and have Internet access (Fairlie, 2004). Researchers of these issues remain puzzled and speculate about the rational for reasoning behind the findings (Fairlie, 2004; Larrison, et.al,

2002; Stanley, 2002). Although culture may be a factor, few studies have been conducted on the role of culture in home computer ownership and Internet access.

Research Question

In an effort to add to the literature regarding culture and the digital divide, the researcher investigated the following question: *In what ways do sociocultural factors influence the success of non-traditional, Latina pre-service teachers in a required online media and technology course?* This question developed from an instructional media and technology course that was offered by a land grant institution in Southwestern Kansas as a distance online course with no instructor present for face-to-face contact in the spring semester 2005. Through anecdotal evidence, the instructor of record noticed that the Spanish surnamed students seemed to have more difficulties than non-Spanish surnamed students who were enrolled in the same course. This study focused on the patterns, constructs and commonalities within the participants' shared experiences related to successful completion of the instructional media and technology course, the researcher operationally defined the following sociocultural factors impacting the study: 1) generational status refers to the number of years or generations each participant's family lived in the United States; 2) English language ability was determined by the researcher, a former English teacher, based on each participant's use of conventions in written and spoken classroom work, e-mail communications, and interviews as well as the language assistance they needed to speak and comprehend course readings and lectures; 3) educational attainment was determined by the level of each participant's post-secondary education; 4) socioeconomic status was determined by the income and occupation of each participant, her immediate family members, and her computer ownership and internet access, and 5) gender identity was determined based on gender roles within each participant's family as well as family responsibilities, support systems and conflicts.

Data Collection and Analysis

The success of each non-traditional, Latina pre-service teacher in the required online media and technology course was determined by an examination of course artifacts which included: quizzes, skills tests, exams, course project, final grade, and electronic correspondence (e-mail) with the instructor and researcher. The sociocultural factors influencing each pre-service

teacher's success were explored through: observations by the participant researcher, including the collection of video and audio recording of video conferenced classes; individual, semi-structured in-depth interviews with participants; and program documents, consisting of registration forms, demographic data and academic transcripts.

The researher used a thematic apporach for analysis based on the professional literature. As described above, multiple pieces of data were collected. Course artifacts were used to determine the success of the eight non-traditional Latina pre-service teachers in the required online media and technology course. The remaining three sources of data, observations, interviews and program documents, were used to examine sociocultural factors that impacted the success of these pre-service teachers. Each piece of data was analyzed multiple times to identify thematic categories and then common patterns in the data across the thematic categories. Based on the research question, all data was separated into two overarching headings: 1) *student success in the online instructional media and technology course*, and 2) *sociocultural factors that influenced student success*. The trustworthiness of the data collection and analysis process was enhanced through triangulation of data sources, prolonged engagement, persistant observation, peer debriefing, the use of thick-rich descriptions, maintanance of an audit trial, and the use of a peer reviewer.

Significance of the Study

In the twenty years since the digital divide has been identified, few studies have focused on the role of culture; even fewer on the Hispanic culture as an indicator in the technology gap between racial and ethnic groups (Fairlie, 2002; Kominski & Newburger, 1999). Multiple studies have focused on the increase in the number of computers in schools and homes, however; few have identified the need for computer literacy and competency or what that means for users who need computer technology skills for the purpose of educational attainment, job security and economic opportunity (Stanley, 2002). A few studies have indicated that perhaps the link between ownership and access for Hispanic groups is an issue of computer or technical language ability (Childers, 2003; Fox, 2007; Resnick, 2000; Stanley, 2002). This phenomenon is being called computer fluency or the fluency gap (Resnick, 2000). As pre-service teachers, the need for 21st century skills in and out of the classroom will be necessary for meeting the needs of their future learners as well as being able to fully participate in our current society. This study will add

to the research in the digital divide by identifying reasons for these gaps within the Hispanic population, by looking at sociocultural aspects that relate to access, ownership, and use of computer technology for teaching and learning.

Limitations of the Study

The pre-service teachers in this study were recruited into the program through a specific grant program offering elementary education degrees with an emphasis on English as a Second Language certification. In narrowing the study, based on culture, only those students who were of Mexican-American heritage residing in Dodge City, Kansas were included in this study. All participants were first generation college students and bilingual, and all report English as their second language. Additionally, most were paraprofessionals in Dodge City public schools. As a result of the bounded nature of this study, the researcher will not make claims related to the delivery of all distance courses, all teacher education programs, or traditional versus non-traditional second language learners. This study was conducted with regard to a unique criterion, utilizing an adaptive delivery method.

As the researcher and the graduate teaching assistant in the technology course used for this study, the researcher made every attempt to remain unbiased and provide support and assistance for the success of the students without influencing their grade or competency in development of computer skills. Because she was not involved in the grading of assignments required for successful completion of the course, skewing the data.

Although I am a representative of an underrepresented group, namely Mexican-American as well as a female, I do not believe that my experiences directly mirror those of my participants. Unlike the participants in this study, both of my parents were born and raised in the U.S., and they both learned to speak English before attending public schools in Texas. I was raised as a monolingual native speaker of English and learned Spanish as my second language. I attended a traditional high school where I was prepared for an undergraduate education, and I entered my undergraduate program as a traditional student the fall after my senior year in high school. My undergraduate experience was not-traditional, in that I lived at home and worked to help my family, it did include time for studying, time for friends, as well as time for work. It is in my graduate education, as a Latina wife and mother in a traditional Hispanic family, that I can relate to the struggles of many of the participants in this study. My interest in the digital divide comes

from my own family's experience with regard to technology, ownership and access. While in high school a peer had access to a word processor; whereas, I was forced to use a borrowed portable electric typewriter to produce research papers in an honors level history course. My peer was able to edit, copy and paste; whereas, I was forced to spend hours retyping, correcting, starting over or just leaving my errors knowing my grade was going to be effected. Additionally, my father did not believe that purchasing video games or even playing video games for quarters was a good investment. Only things that could be used as tools for work or learning were purchasable items, if the family could afford them.

Definition of Terms

The following terms will be used throughout the description of the study:

Acculturation: The definition of acculturation includes an adaptation to another culture, another way of thinking or functioning that is different from what has been familiar. Acculturation is the merging of two or more cultures (Freeman, Y. & Freeman, D., 2002).

Assimilation: Assimilation assumes that one's culture is pushed out of the picture and one adopts a new culture (Freeman, Y. & Freeman, D., 2002).

BICS: Basic Interpersonal Communications Skills are the language for everyday conversation. Conversational fluency is the first to develop in second language learners. Usually proficiency is reached after two years of immersion in a language (Cummins, 1991).

CALP: Cognitive Academic Language Proficiency is the language used for academic learning and assessment. At least five years is usually required catch up to native speakers in academic aspects of the second language (Cummins, 1991).

Computer Fluency: Computer fluency means knowing how to use the technology and how to construct things of significance using the technology tools (Resnick, 2001).

Computer Literacy: Computer literacy is the basic understanding of how a computer works (Childers, 2003).

Computer Proficiency: Computer proficiency is the skills needed to do whatever task is required using the computer (Childers, 2003).

Digital Divide: The digital divide is the gap between those who are able to benefit from digital technology and those who are not (Edutopia, 2006).

ESOL:English for Speakers of Other Languages is used to identify a person whose first, home or dominant language ability is other than English (Freeman, Y. & Freeman, D., 2002).

Fluency gap: Fluency gap is the discrepancy between knowing how to use technological tools and how to construct things of significance using the technology tools (Resnick, 2001).

Generational Status: Generational status is an indication of how many generations of the familiy have lived in a given country. **First Generation** refers to a foreign-born individual who is not a U.S. citizen at birth or who is born outside the U.S., Puerto Rico or other U.S. territories and whose parents are not U.S. citizens. **Second Generation** refers to an individual who is a U.S. citizen at birth (including people born in the United States, Puerto Rico or other U.S. territories, as well as those born elsewhere to parents who are U.S. citizens) with at least on first-generation parent. **Third or higher Generation** refers to an individual who is a U.S. citizen at birth with both parents U.S. citizens at birth (Fry, 2009).

Gender roles: For the purpose of this study, this term will refer to thoughts, feelings, and behaviors that are identified historically, traditionally, and/or culturally as either female or male; specifically, in this case, the culturally determined behavior of both genders. The literature of the topic addresses two culturally relevant and gender specific roles known as *marianismo* and *machisimo. Marianismo* is an idea that teaches that the ideal woman is emotional, kind, instinctive, whimsical, docile, compliant, vulnerable, and unassertive. She has a higher status in the community if she has children and is a caring mother. She is also pious and observant of religious laws (Chaney, 1979). *Machismo* describes the traditional moral and ethical behaviors and values that a Latino male should exhibit, both positive and negative (Ramirez, 1999) Both terms have very specific gender role and gender trait expectations. These gender expectations are implicit in every aspect within the Hispanic culture. Hence, the Hispanic culture and all that it expects is only one of the dual worlds that Hispanic females must learn to navigate successfully. The researcher chose this definition because it helps demonstrate the importance of family and its expectations for all who are part of it. Ginorio and Huston (2001) concurred, "Many families emphasize or highly esteem traditional roles for women as wives and mothers," and further state,

"Hispanic gender roles for women are extremely restrictive; many traditional adults question the value of any education for women" (p. 24).

Hispanic or Latino: These terms are used interchangeably for this research and refer to the group of Americans who share a language and common cultural origins but who come from diverse nations and backgrounds with distinctive histories and socio-economic and political experiences. The three largest Hispanic subgroups in the United States are Mexican-American, Puerto Ricans, and Cuban-Americans, but the number of immigrants from Central and South American has been growing quickly over the last 15 years. These subgroups are concentrated in different parts of the United States, their economic circumstances vary and the timing and causes of their immigrations differ. As diverse as this population is so are their many strengths and needs of the Latino student population (Brown, Santiago & Lopez, 2003).

ICT: Information and computer technology. This term refers to any device, hardware or software that is used or created for the delivery of digital content (Roblyer, 2000).

Paraprofessional: A person who is trained to give support to a professional person such as a teacher in a classroom. Often times paraprofessionals are bilingual or special education aides.

Place-bound: 'Place-bound' is defined as perceived difficulty in leaving the immediate geographic area to attend school (Shields, 2004). Generally due to family or economic obligations.

Pre-service teachers: Undergraduate students who have been accepted into the college of education program for a bachelor's degree in education and teacher certification. In this study; the group of pre-service teachers have been employed as para-professionals in public school classrooms for 1 year or more, generally assisting in English as a Second Language programs.

Sociocultural: A relatively new term with several definitions incorporating the same ideas within the social sciences. Both the fields of anthropology and sociology agree that different cultures have various systems, including: beliefs, values, manners, normative behaviors, and

practices but have varying terms for identifying these patterns. For this study sociocultural anthropology is defined by Dr. Richard Wilk (2009), at Indiana University, as the current concepts and issues in the study of culture including, but not limited to: economics, ecology, kinship, life cycle, education, social stratification, political organization, religion, values, culture change, evolution, methodology, etc.

Upward Bound: Upward Bound serves high school students from low-income families and high school students from families in which neither parent holds a bachelor's degree. The goal of Upward Bound is to increase the rate at which participants complete secondary education and enroll in and graduate from institutions of postsecondary education (Department of Education, 1980).

Summary

The focus of this study was to understand and describe the sociocultural factors that influence the success of non-traditional, Latina pre-service teachers in a required online instructional media and technology course through the use of qualitative, naturalistic research methods. Multiple sources of data were collected and analyzed using operational definitions of sociocultural factors identified as having an influence on the success of the participants in this study. Hispanic and African American groups continue to lag behind in our digital society. This study seeks to offer insight and understanding to better prepare Latino/a citizens to live, learn and teach in our technological society, while finding ways to close the gap in the digital divide.

Chapter 2 - Literature Review

The purpose of this chapter is to provide a broad review of the literature as it relates to the digital divide in the U.S. The specific focus on the digital divide to be examined relates to Hispanic populations with regard to ownership and access of computer technology, computer literacy, and the potential for technology to assist Hispanics [Latinos] in rural communities as a means for post-secondary education completion. Similar to participants in this study, non-traditional students who live in rural areas and seek to advance their careers are beginning to see simple distance technologies as an avenue for personal and professional development. Internet technologies and computer access serve as the critical link to higher education and social mobility.

This study is an exploration of the sociocultural factors that influenced the success of non-traditional Latina pre-service teachers enrolled in an online course who lived and worked in a rural community. This chapter provides an overview of the literature as it relates to defining the digital divide, the need for 21st century learning skills, the digital gap for Hispanics, the definition of computer literacy, and the availability of Internet access among Latino/as.

Defining the Digital Divide

Since the 1980's, the U.S. has been a world leader in the *Information Age*, as home computer ownership and Internet access have become essential to education, job security and economic opportunity (Brown, Santiago & Lopez, 2003; Cooper, 2000; Gorski, 2002; Kupperman & Fishmann, 2002; Stanley, 2002; Wilhelm, 2004). While great opportunity has been available to those who could afford and understood the potential of home computers and Internet access, those who are left behind are consistently less educated and poor; hence the growing gap called, the digital divide. The digital divide has been defined several different ways over a 20-year period; the time in which computers have become a contributing factor in speed and access to information. It pertains to the gap between individuals and communities with greater and lesser access to technology resources and training (Brown, et al., 2003; Edwards, 2005; Edutopia, 2005; Wilhelm 2004). Lack of access to up-to-date computers in low-income communities and to affordable Internet service in rural areas leaves many people cut off from quality jobs and the chance to participate in the affairs of the broader society (Cooper, 2000; Goslee, 1998; Kominski & Newburger, 1999; NCES, 2003; Fox, 2007 USDC, 2004).

The technological gap between those who have and can afford communication technologies such as high quality computers and Internet access is not new, yet some researchers argue it is forgotten. The Telecommunications Act of 1996 was the first legislation to propose the idea of *universal access* (Servon, 2002). The universal access rules were expected to:

- Lower basic telephone service for all
- Reduce rates for low-income consumers
- Provide rate parity for high-bandwidth
- Enhance telemedicine connections
- Provide schools and libraries with discounts for basic and advanced Internet services (p. 17).

The 1996 act set the foundation for policies that would later build on efforts to close the digital divide. However, the act did not provide funding for an infrastructure. Schools and libraries had to use what was already available. Community technology centers (CTC), where listed as part of the act. The intent was for cities to construct or maintain CTC so that all members of a community could access technology. For CTC, where the poor go to access the Internet, there was availability of low cost access, but no infrastructure. CTC were not supported with up resources such as up-to-date computers, or equipment for wiring, etc. (Servon, 2002). Local communities were expected to provide equipment.

Since 1996, the federal government has established multiple programs aimed at bridging the digital divide. However, due to the complexity and the fragmentation of the federal policies, no one department is responsible; each has separate goals and responsibilities. Some of the federal agencies and departments include:

- Department of Education
- Community Technology Center programs
- Department of Commerce
- Department of Housing & Urban Development
- State & Local governments

During the Clinton administration, the federal government reaffirmed its commitment to closing the digital divide by sponsoring and supporting several initiatives. Its goal of was to provide broadband [Internet] access for all U.S. citizens in order to develop a computer literate

workforce. Through these initiatives, multiple studies have been conducted regarding the impact of access and use of the Internet among citizens. Reports dating back to census data from 1984 began to include survey information about student's use of computers as well as Current Population Surveys (CPS) conducted each month (US Census, 2008). These reports concluded that a strong relationship exists between education and computer ownership (Kominski & Newburger, 1999). Other reports have identified education, occupation and geographic location as the factors impacting Internet access (Cooper, 2000; Fox 2007; Kupperman & Fishmann, 2002; Stanley, 2002; USDC, 2004).

Millions of dollars per year in grants for both private, non-profit, and for profit organizations as well as for local and state governments have been allocated to develop programs that will bridge the digital divide. Presidential initiatives that ambitiously promised broadband access to all citizens during the Clinton, Bush and even Obama administrations have yet to be fully realized. The difficulties in reaching all citizens, rural and urban, and making broadband access affordable, continues to widen the gap in the digital divide (Gorski, 2005; Mack, 2001; Servon, 2002).

As a sociological phenomenon, the digital divide has been growing since the mid to late 1980's. It is only within the last ten years that significant research findings haave been compiled about the digital divide, its causes and potential solutions for closing the gap between the *haves* and *have nots* (Digital Divide, 2004; Edutopia, 2006; Fairlie, 2004; USDC 2000). The digital divide is a complex issue, as stated by Gorski (2005), "The divides are a set of problems that cannot be fixed by introducing more computers or more, or faster, Internet access into an inherently inequitable system," (p. 28). These thoughts are reiterated by Goslee in her 1998 Benton Foundation sponsored report, *Losing ground: Bit by bit,* where she states, "narrowing the technology gap will be more difficult than simply introducing computers or offering classes" (p.29). These researhcers point to education as the key. Increasing individual basic computer skills will lead to computer literacy and, therefore; narrow the digital divide.

Computer Literacy

The concept of computer literacy dates back to 1965; however, computer technology has transformed and evolved quickly and significantly enough that the definition is no longer as important as the concept. It is evolving as quickly as the availability of new technology (Hess, 1994). The fast and growing nature of information technologies (IT) or information and

communication technologies (ICT), according to the National Literacy Trust (2009), require that citizens be literate and have high competency in the use of IT. However, there is ongoing debate over the definitions of IT and ICT literacy and competency. For example, What is technological knowledge? How is it defined or measured? ICT literacy is often defined as a set of basic skills to be learned, while competencies are defined as the demonstration of IT skills (Fulton, 1998; Talja, 2005). Computer literacy and competency is often a pre-requisite for jobs and college level instruction. The U.S. Department of Commerce (2000) defines IT skills as "survival skills" in modern job markets in Talja, (2005). Few researchers and educators agree on what computer literacy means (being able to diagnose a problem in software or hardware) or what those skills include (familiarity with programs, data processing [typing], spreadsheets, power point, etc). Computer literacy and having basic computer skills are not enough in the digital age, fluency is the larger issue.

Fluency in technology means being able to not only search the web, but also having enough knowledge and experience using a computer to actually create a website, or other digital media content for use and application (Resnick, 2001). The more important that online activity becomes, the more vulnerable lower income, less educated and minorities are to being left behind. The fluency gap in the digital divide is not about English language skills, but rather having enough experience and knowledge of how IT works to be able to use, understand and take advantage of informational technologies for educational, social and financial gain. Lack of computer literacy, competency and fluency are the factors that may keep people from being successful in the information society.

The Hispanic/Latino Population

As of the last decennial population census in 2000, Hispanics in the United States made up 12% of the population, 45 million people (USCB, 2010). Hispanics are the fastest growing minority group in the United States. By 2010, Hispanics will make up one out of every five young people of high school age, compared with one in ten in 1990 (Varnes & Mizell, 2001). In the U.S., the Hispanic population is concentrated in the West and South, in larger metropolitan areas such in Texas, California, and New York. Only 7.7% of Hispanics live in the Midwest and generally they are of Mexican origin (US Census, 2010). The Hispanic population is concentrated in two distinct demographics, the very young (ages 4 -12 early pre-school and elementary school age) and the working and childbearing, (ages18-59) (Ramirez & De La Cruz,

2002, p. 61). These trends in population distribution directly reflect the increase in public school enrollment figures, particularly at the early elementary level. Since the mid-1990's, enrollment at elementary levels in public schools has increased because of the growth of the Hispanic population (Fry, 2006). Between the school years 1993-1994 and 2002-2003, 64% of the student population was Hispanic while White enrollment dropped by 1% (Current Populaiton Statistics, 2008, table 6.2). In the state of Kansas, the Hispanic population has grown to 46% (Fox, 2007, p .3) with the largest population clustered in the southwestern portion of the state.

Latino/a Critical Race Theory

An understanding of the issues involved in educating U.S. Hispanics requires a brief history and review of the crictial race methodologies that have been developing since the 1960's to understand the needs of culturally and linguistically diverse populations. Critical Race Theory (CRT), and Latina/o Critical Race Theory (LatCrit) call attention to the way in which conventional, and even critical, approaches to race and civil rights ignore the problems and special situations of Latino people--including bilingualism, immigration reform, the binary black/white structure of existing race remedies law, and much more. The emerging body of Latino/a critical legal scholarship now includes over one hundred law review articles and several books (Delgado & Stefancic, 1995).

LatCrit is a lens through which to view the ways in which culturally and linguistically diverse populations approach education and the limits of the educational system to meet their needs. Fancisca Gonzáles, in her 2002 study, *Haciendo que hacer: Cultivating a Mestiza Worldview and Academic Achievement: braiding cultural knowledge into educational research, policy, practice,* elaborates on how a braiding of different ways of knowing, teaching, and learning brings cultural knowledge to the discussion on human rights, social justice, and educational equity, this includes the formulation of holistic educational policies and practices. Using the cultural knowlede of a group and/or individual can help to explain the ways in which knowledge is gained, used and valued, and can aid in the teaching practice for culturally and linguistically diverse populations. Gonzáles (2002) follows a group of female Mexican students throught their high school experiences in California, documenting their struggles with peers, family, the system, and their own attitudes about being Hispanic in the United States.

In a smilar study, Lilia Fernández (2002) documents a single Latino student in Chicago. Fernández (2002), documents the student's struggles with the oppressive educational system that

does not value or foster the cutlural diversity that the student brings to the classroom. As a result, the student and his friends find alternative resources and activities to meet their needs for acceptance and belonging outside of school. This study demonstrates the need for a better understanding of the needs of culturally diverse students in public schools.

Delores Delgado Bernal (2002) uses LatCrit, to establish and consider the value critical (Morales, 2001, p. 31) raced-gendered epistemologies for validating students of color as "holders and creators of knowledge" (p. 105). Delgado Bernal utilizes this understanding in conjunction with LatCrit, which "elucidates Latinas/Latinos multidimensional identities and can address the intersectionality of racism, sexism, and other forms of oppression" they experience (p. 108). Her use of a Chicana feminist epistemology illustrates the protective power of community/family knowledge and collective experience for Chicana/os when confronted with deficient perspectives (Morales, 2011, p. 31) stemming from "Eurocentric epistemologies of white superiority" and capitalist individualism (p. 112). Using LatCrit as a way of knowing, may aid in the understanding of the continued digital divide for Hispanics.

Rates of Computer Ownership

Several studies throughout the late 1990's and early 2000's found that income and education were good indicators of whether or not a household owned a computer. In households that earned $100,000 or more 80% owned computers, whereas in households earning less than $30,000 only 25% reported owning a home computer (Goslee, 1998). The study also showed that 53% of people with an undergraduate degree or higher reported using the Internet, while only 19% of people with a high school diploma or less were regular users of the web. These finding support a correlation between income, education and home computer ownership (Cooper, 2000; Fairlie, 2004; Goslee, 1998; Kominski & Newburger, 1999; Larrison, et al., 2002, Roblyer, 2000; USDC, 2002; Wilhelm, 1998).

Data on Hispanic trends from the same time period (Wilhelm, p. 4) report different findings regarding Hispanics and the purchase of home computers. Wilhelm's (1998) study indicated that the reasons Hispanics do not own computer technologies at the same rate as other ethnic/racial groups is not related to economic status. In his comparison study, Hispanics in two California cities who did not own computers but had incomes ranging from $25,000 to $65,000 fell into one of two clearly defined groups:

Group one **Group two**

College educated	Non-College educated
Professional	Working class
English speaking	Spanish speaking
U.S. born	Foreign born

The study found that although the two groups showed dichotomous characteristics regarding education, career levels, langauge spoken, and place of birth, over 90% of the participants in the study reported a strong belief that Hispanics needed computers to keep up with progress (p. 5). They reported that computers were a high priority, and that they would purchase one within a year of the study, but were hesitant about having a computer in the home due to the inappropriate content that could be found on the Internet. Wilhelm (1998) indicated that, although income was related to computer ownership in other studies (Fairlie, 2004; Goslee, 1998; Kominski & Newburger, 1999; Larrison, et al., 2002, Roblyer, 2000; USDC, 2002; Wilhelm, 1998), some Hispanics have been middle class income earners for at least a generation and have access and use of computers at work or school even if they do not own home computers. Wilhelm's rationale for his finding were that Hispanics don't purchase home computers and equipment because, "their purchasing priorities are less attuned to the acquisition of computer technology," (p. 3). Owning a personal computer does not seem to be a high priority for Hispanics.

While socio-economic factors do contribute to the lack of home computer access and use among Hispanic and African-American communities, these factors cannot explain the difference among ethnic/racial groups entirely. The cost of computer ownership has significantly declined and free public Internet access has increased, yet Hispanics remain the largest ethnic/racial group that are least likely to be connected at home (Larrison et al., 2002; NCES, 2003; Wilhelm, 2004). Other studies have indicated that factors other than education and economics are affecting the use and ownership of computers, particularly in the Hispanic population (Fairlie, 2004; La Rose & Mettler, 1989; Kominski & Newburger,1999; Stanley, 2002; Wilhelm, 1997). If one piece of the puzzle is culture, then the other missing pieces may be experience and knowledge related to the use of computers and the Internet. The increased use of the Internet in the work place, often assumes Internet access at home; However, access is an additional issue in home computer ownership.

Availability of Internet Access

Although broadband subscription rates increased greatly across the nation during 2003 in the Midwest only 53.5% of the population reported having a home Internet connection service (USDC, 2004). Only 17.5% of Midwesterners reported having broadband access, which includes services through a cable modem, digital subscriber lines (DSL) or multi-media distribution systems (MMDS), (USDC, 2004, p. 8). Broadband access requires external equipment that can be quite expensive; though some can be rented from the provider at an additional cost for service (USDC, 2004). According to the study, (USDC, 2004), the main reasons that people in rural areas gave for not having high-speed Internet access were:

- Not interested
- Too expensive
- Unavailable

People in rural locations have the added issue of geography to deal with as well. Many have had limited, if any, access to high speed or broadband Internet connection even as late as 2007.

Computer Literacy related to culture

The need and level of computer competency is based on the perception of the individual within their particular social, educational and occupation setting (Menard-Warwick, & Debach, 2004; Stanley, 2002; Wilhelm, 2004). Therefore, development of IT literacy is dependent on a person's desire or perceived need for IT skills. Most poor and Hispanic adults who attended community centers for the purpose of learning computer skills sought these services as extended learning opportunities to increase their income, retain their jobs, or for improved job opportunities (Kupperman & Fishman, 2002; Stanley, 2002).

A comparison study, conducted by Menard-Warwick & Debach (2004), of two Mexican-American families and their computer practices found that one family who were educated and of middle-class background were able to take advantage of the economic benefits of owning a home computer and having internet access. The other family, less educated laborers, viewed gaining computer literacy as being able to move up in their current positions once they had desirable computer skills. Researhers stated, "We were struck by the way that computer practices entwined with the existing fabrics of our participants' lives and by how closely patterns of computer use were tied to issues of gender and social class in the families that we studied" (Menard-Warwick

& Debach, 2004, p. 382). In another study of participants at a CTC, a woman understood that until she had the skills necessary to run the computer at the front counter of a dry-cleaning business, she would be stuck in the back, pressing the clothes (Menard-Warwick & Debach, 2004, p. 385). As these studies indicate, when identifying Hispanics' attitudes about computer technology, there must be a perceived need for use and ownership of technology as necessary for economic gain before an investment in IT will be made (Menard-Warwick & Debach, 2004; Resnick, 2001; Stanley, 2002; Wilhelm, 2004).

Sociocultural Factors

The Hispanic population in the U.S. is a multicultural group with varying characteristics such as: foreign born or U.S. citizens, different language preferences, different geographic locations, and variable generational status (first, second, third generation U.S. born). Such variations create differences in attitudes and sociocultural patterns due to differences in acculturation (McKeever & Klineberg, 1999). These characteristics, or a combination of characteristics influence the ways in which a Hispanic person identifies him/herself, making it difficult to categorize "Hispanic" behavior patterns and social norms (Crissey, 2009). For the purpose of this study, sociocultural factors will be identified as 1) generational status, 2) English language ability, 3) educational attainment, 4) socioeconomic status, and 5) gender identity as previously operationally defined.

In 2002, the U.S. Census published a report on Hispanic trends using current population reports, in which a comparison was made between the growing Hispanic population and non-Hispanic Whites. The report was designed to be a profile of the Hispanic population to provide demographic and socioeconomic characteristics [sociocultural factors] about the Hispanic population. These sociocultural factors were identified as: educational attainment, age, earnings, poverty status and geographic location in the U.S. (Ramirez & De La Cruz, 2002). The intent of the report was to identify the patterns and customs of Hispanics living in the United States and to make educational and economic projections.

Generational Status

The PEW foundation published a 2009 report called, *Latino Children: A Majority are U.S. born Offspring of Immigrants*. The report classifies Latinos living in the U.S. by generational status as:

- First Generation: Foreign-born; an individual who is not a U.S. citizen at birth or in other words, who is born outside the U.S., Puerto Rico or other U.S. territories and whose parents are not U.S. citizens.
- Second Generation: An individual who is a U.S. citizen at birth (including people born in the United States, Puerto Rico or other U.S. territories, as well as those born elsewhere to parents who are U.S. citizens) with at least one first-generation parent.
- Third Generation or higher: An individual who is a U.S. citizen at birth with both parents U.S. citizens at birth. 52% of Hispanics in the U.S. are second generation (at least on parent is an immigrant), 37% are third generation (at least one parent is U.S. born).

These facts are significant when considering language acquisition and the process of acculturation. Within the process of acculturation, lies the degree to which gender roles influence behaviors and attitudes.

English Language Ability

Generational status directly influences English language ability as a process of acculturation, as non-native English speakers become integrated into the new language and culture. In John Ogbu & Mature-Bianchu's 1988 study, he characterized non-native speakers of English as either *immigrant* or in*voluntary* minority students. Immigrant minorities are motivated by the belief that they will one day return to their home country and use the skills and education that they have gained while in the United States. For immigrant minorities, maintaining the home language and cultural customs is important for their return to their homeland. Therefore they often retain their language and customs (Ogbu, & Matute-Bianchi,1988). Involuntary minority students may have lived in the United States for years, sometimes generations (p.157). For involuntary immigrants it is important to find ways to adapt or acculturate to the new customs and cultures, success is then measured by mainstream standards. An important determinant of school success or failure is the social status of various groups and their perception of the social hierarchy that exists in U.S. culture. Social factors then contribute the school performance for English learners (Freeman & Freeman, 2002).

For Hispanic populations, education and English proficiency are highly significant factors in explaining the race difference in Internet use (Fox, 2007, Slate, Manuel, & Brinson, 2002). Productive members of a technological society must be able to use computers and they

must also be able to understand English. It is the main language of technology (Childers, 2003; Fox, 2007; Kupperman & Fishman, 2002; Resnick, 2001; Stanley, 2002). Language learning is a complex, dynamic process that forms the foundation for academic skills. Research has shown, it can take anywhere from five to seven years for non-native speakers of English to master the language at academic levels, comparable to native English speakers (Cummings, 1991). Beginning with basic communication skills, English learners face an uphill battle to acquire the sophisticated verbal skills needed for college entry or career success (Diaz-Rico, 2004).

Educational Attainment

Although the Hispanic population is the fastest growing ethnic/racial group in the U.S., they lag behind all other racial/ethnic groups in educational attainment. Over one-quarter of Hispanics in the 2000 census reported having less than a ninth grade education (Majeski-Pullman, 2007; Ramirez & De La Cruz, 2002; Varnes & Mizell, 2000). In 2005, the high school dropout rate of Latinos was highest, followed by those of African Americans and American Indians/Alaska Natives (National Center for Education Statistics, 2007). Hispanics who have graduated high school and have some college only represent 45.9 percent of the population; for non-Hispanic Whites, the rate is 59.3 percent (NCES, table 6.3).

Yet, when looking at rates of bachelor's degrees from the 2002 Census data, among Hispanics, only 11 percent completed a bachelor program. While non-Hispanic White completion rates were 29.4 percent (National Center for Education Statistics, 2007, p. 77). Hispanics tend to be non-traditional students; in other words they tend to delay entry into college. Many Latinos who enroll in college are 24 years of age or older and attend night classes or are enrolled only part-time. Often times this is due to family and work obligations (Cavanagh, 2002). Hispanics, particularly from small communities or rural areas, tend to enroll in community colleges. As stated by Fry (2002), "There is a perception that community colleges are more affordable, and that they have more vocational offerings" (p. 11). Additionally, Hispanics chose to stay close to home to assist in providing emotional and economic support to the immediate as well as extended family (p.11).

Second generation Hispanics; those born in the United States who have graduated from high school, are as likely to enroll in college as students from other ethnic/racial groups; but, they still were not as likely to graduate with a four-year degree (Cavanagh, 2002; Majesky-Pullmann, 2007). Researchers found that the majority of Hispanics enrolled in college were

seeking college credit for advancement in their current occupations or computer skills to "get a better job" (Stanley, 2002, p. 411). In many cases, just a few courses at the community college will provide the job training necessary to move forward in a job.

Education in the United States has not been an easy task for Latinos, particularly for Mexican Americans living in the southwest. Educational research on Latino/as has often focused on low academic achievement, rather then on rates of success (Cavanagh, 2002). Some of the issues affecting Latino/a students are segregated schools, inequities in school finance, lack of bilingual education programs, and tracking into vocational and special education classes (Herrera, Murry, & Morales-Cabral, 2007). Although research and policy reports may document educational conditions that affect Latino/a students, they seldom incorporate students' own perspectives on their education. They also do not acknowledge how these students cope with or respond to these educational conditions (Fernandez, 2002). Critical Race Theory (CRT) and Latino/a Critical Race Theory (Lat Crit) place the marginalized participant at the center of analysis (Valdes, 1998). Methodologically, these theories direct us to capture the stories, counter-stories, and narratives of marginalized people. Using this methodology is a way to give voice to and recognize the lives of students of color and the issues that they face through their own words, culture and identity.

Socioeconomic Status

Socioeconomic status (SES) is often measured as a combination of education, income, and occupation (American Psychological Association 2009). It is commonly conceptualized as the social standing or class of an individual or group. When viewed through a social class lens, privilege, power, and control are emphasized. When SES is viewed as a continuous variable, it reveals inequities in access to and distribution of resources (APA, 2009, p. 2), for example American Indian/Alaska Native, Hispanic, Pacific Islander, and Native Hawaiian families are more likely than Caucasian and Asian families to live in poverty (National Center for Education Statistics, 2007).

Poverty is an indicator of the long term wellbeing of a family. Children who live in poverty are more likely than their peers to have cognitive and behavioral difficulties, to complete fewer years of education, and, as they grow up, to experience more years of unemployment (American Community Survey, 2010). According to the same source, the U.S. poverty rate for Hispanic children, was 32.3 percent (5.5 million), (p.2). The poverty rate for Hispanic children

was 15.3 percentage points higher than the rate for White, children but 5.9 percentage points lower than the U.S. rate for Black children (p.4) Hispanics have consistently ranked lower than non-minority groups in SES, and the types of resources for educational and economic opportunity and development are not equal.

Gender Identity

Gender identity refers to thoughts, feelings, and behaviors that are identified historically, traditionally, and/or culturally as either female or male; specifically, the culturally determined behavior of both genders (Gill, & Inoa-Vasquez, 1997). For the Latino population there are two culturally relevant and gender specific roles known as *Marianismo* and *Machisimo*. Both terms have very specific gender role and gender trait expectations. These gender expectations are implicit in every aspect within the Hispanic culture. Hence, the Hispanic culture and all that it expects is only one of the dual worlds that Hispanic females must learn to navigate successfully. *Marianismo* and *Machisimo* demonstrate the importance of family and its expectations for all who are part of it. Ginorio and Huston (2001) concurred, "Many families emphasize or highly esteem traditional roles for women as wives and mothers," and further state, "Hispanic gender roles for women are extremely restrictive; many traditional adults question the value of any education for women" (p. 24).

Based on family values, many Latinas are expected to live up to certain cultural gender role expectations. These expectations range anywhere from family care to working to help sustain the family economically; but, the most expected gender role is marianismo, which is often referred as the other side of the machismo coin. According to psychologists, Gil and Inoa-Vazquez (1996), marianismo is about sacred duty, self-sacrifice, and chastity: about dispensing care and pleasure not receiving them, living in the shadows, literally and figuratively, of your men, father, boyfriend, husband, son, your kids and your family" (p. 7). They further stated that marianismo is a no win situation (p. 7), because it insists that Latinas live in a world that no longer exists and which perpetuates a value system equating perfection from submission. These gender role expectations are revered among the Latino families and their communities" (p. 7). Today, a Latina's self- denial is not only the norm but also an expectation in order to live peacefully in many Latino families. Gil and Iona-Vazquez (1996) concluded that many;

> Latina women end up in this position because the dark side of machismo mandates that men have options and women have duties. It means that a man's place is en el mundo, in

> the world, and woman's place is en la casa, in the home. It means that your (the Latinas) brother is praised for being ambitious, while you (the Latina) are discouraged for the same quality. And it means that first your (the Latina) father, and then your brothers, then your husband give the orders and you obey them. (p. 6)

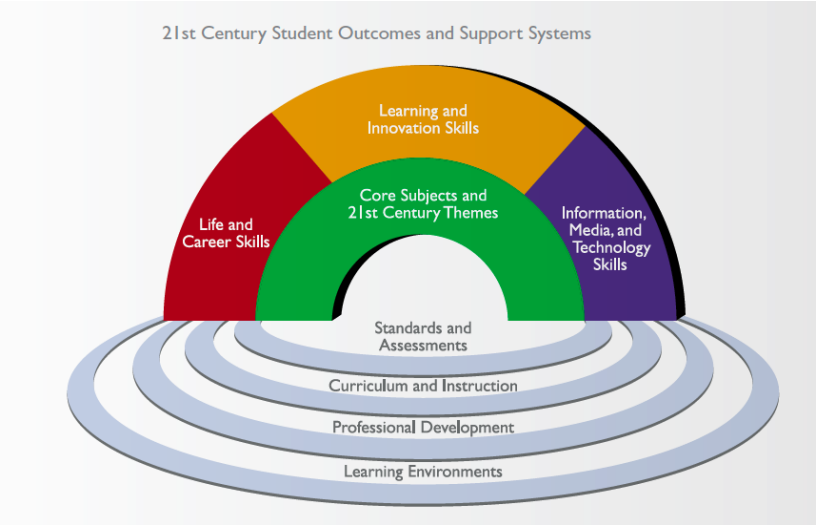
21st Century Learning Skills

21st century learning skills are identified by multiple reports as the skills necessary to be effective learners and workers in the "new Information society" (Edutopia, 2006, p.1). ICT (Information and Computer Technology) literacy is continuously being defined. ICT literacy ranges from simple uses of technology in everyday life to uses in performing complex tasks (ETS, 2007, Resnick, 2001). The ETS report in 2007, states that ICT literacy should include both cognitive skills as well as the application of technical skills and knowledge. These include general literacy, such as reading and mathematics, as well as critical thinking and problem solving. Workers need to master many new skills to adapt to changes in job requirements. Employees will need to develop vocabulary and fluency necessary to understand technological concepts. The ETS report identifies computer literacy concepts or skills necessary for workers to be able to compete for jobs in the 21st century include being able to:

- Access - knowing about and knowing how to collect and/or retrieve information.
- Manage - applying an existing organizational or classification scheme.
- Integrate - interpreting and representing information. It involves summarizing, comparing and contrasting.
- Evaluate - making judgments about the quality, relevance, usefulness, or efficiency of information.
- Create - generating information by adapting, applying, designing, inventing, or authoring information.

Subsequent to the definitions provided by the ETS report, a 2009 publication of the Partnership for 21st Century Skills Organization focuses on the skills, knowledge and expertise that students must master to be successful in work and life (21centuryskills, 2009). The publication is a framework for teachers, schools and parents based on several state's technology standards including Kansas. The website provides tools and resources appropriate to grade levels and content areas. The framework is structured so that learning environments, professional development, curriculum and instruction and standards and assessments are the core

foundation of the model and integrated into the learning process. Within the development of the skills are: life and career skills, learning and innovation skills, information, media and technology skills are all based on and integrated into the core subjects and 21st century themes. The following graphic represents the foundation for gaining 21st century skills.



Use of technology for learning is only a small portion of skills that will be necessary for living, learning and earning in the future. The changing diversity of the U.S. population will require cultural awareness and the ability to work with others. Ensuring the development of 21st century skills will assist in closing the gap in the digital divide.

Teacher Preparation in Teaching with Computers

The issue of teacher technology preparation has been a concern in schools for the last two decades (Pope, Hare, & Howard, 2002). The development of technologies has grown; and the concern that teachers do not have the skills necessary to adequately integrate technology and pedagogy is real. Both national and international studies report that classroom teachers, pre-service teachers and faculty must be taught and learn how to integrate technology (Ajwa, 2007; Goos, 2008; Lei, 2009; Pringle, Rose, Dawson, & Adams, 2003; Prensky, 2001; Pope, et al., 2002; Schwab, 2001). Just taking computer courses is not enough. Pre-service teachers who take stand-alone technology courses that are not integrated with methods courses are not able to apply what they learn in real classroom situations (Ajwa, 2007). Courses may not provide

experiences linked to the particular ways technology can be used in specific content areas (Groth, Dunlap & Kidd, 2007; Hess, 1994; Lei, 2009; Pope, et al., 2002).

Pre-service teachers and teacher education programs are challenged with the responsibility of educating technologically competent teachers for the 21st century. Teachers must be fluent in computer competencies of operations systems, applications, programming, telecommunications, multimedia, video, graphics, networking, voice digitizer, scanners and CD-ROMS, (Hess, 1994). At the time of her writing, Hess could not have known about DVD, podcasts and video streaming, not to mention the additional technology being produced. Preparing teachers for teaching in a future where the types of knowledge needed and jobs in which current students will thrive have yet to be created is the continued challenge for teacher educator programs.

Social scientists suggest that computer competencies are embedded in social context and based on perceptions or feelings and attitudes about technology of the user / learner (Natriello, 2001; Talja, 2005). Several studies have used behavior and attitude analysis of perceived computer skills to identify the types and levels of skill which undergraduates, pre-service teachers and classroom teachers possess (Hess, 1994; Pope, Hare & Howard, 2002; Lei, 2009; Talja, 2005) and their likelihood of integrating technology into their teaching. Classroom teachers and pre-service teacher educator programs should model and support the use of technology in their teaching methods courses to increase knowledge, skills and confidence of pre-service teachers. The findings and discussions in research studies from 1994 to 2009, all suggest that teacher educator programs should integrate technology into their methods courses (Hess, 1994; Pope, Hare & Howard, 2002; Lei, 2009; Talja, 2005).

Many teacher education programs have not yet integrated technology into their professional teaching curriculum; therefore, teachers report that they are mostly self-taught technologists (Abbott, 2005). Dispite formal training in the area, teachers know the importance of using technology in the classroom. Kathleen Fulton (1998) writes that, "While most teachers are eager to use technology; most were not taught to teach with computers and other technological tools," (p. 62). Many states, including Kansas, have adopted technology standards and teacher education programs also must meet the technology requirements of accreditating agencies such as NCATE (National Council for Accreditation of Teacher Education). Teachers who feel most confident about their computer literacy skills and attend staff developments or

workshops learn to integrate technology on their own (Goos & Bennison, 2008). They also tend to serve as mentors for their peers (Fulton, 1998; Henry, 2005; Talja, 2005; Whale, 2006). Similar studies have evaluated teacher attitudes toward using technology in various classrooms (Ajwa, 2007; Goos & Bennison, 2008; Lei, 2009). Studies were conducted in elementary, secondary and in different subject areas including: language arts, science, mathematics and ESL. Teachers across these studies reported, even if they were to attempt to integrate technology into their classrooms, the following limitations kept them from being successful:

- Access to technology
- Lack of hardware and software
- No professional development in technology development
- Lack of time to teach students technology
- Lack of time to learn the technology necessary
- Need for professional development / training

Most of the teachers indicated that they thought it was important to integrate technology with learning, but did not know how (Ajwa, 2007; Fulton, 1998; Goos & Bennison, 2008; Lei, 2009). Sheingold and Hadly (1990) estimate was that it takes at least five years for experienced teachers to become comfortable using computers in non-routine ways.

Summary

This chapter is a review of the literature related to the digital divide and its impact on Hispanic populations. Included in the literature review are the demographics and projections of the impact that Latinos are having and will continue to have on the population of the United States. Additional trends with regard to Latino/as include the educational attainment of Latinos in post-secondary education, home computer ownership and Internet access rates, computer literacy and the need for teachers to understand 21st century learning skills.

The purpose of the study was to gain understanding and insight into the sociocultural factors influencing the digital divide as related to Latinos as a group, specifically a group of non-traditional, Latina pre-service teachers from Southwestern Kansas in a required online instructional media and technology course. Latinos have traditionally lagged behind other racial/ethnic groups in the acquisition of computer and information technology devices. Through qualitative methods of inquiry, the researcher sought to identify the unique sociocultural

experiences of the participants that influenced their successful completion of an online media and technology course.

Chapter 3 - Methodology

This chapter provides a description of the research methodology used for this study. This study originated from a perceived need to identify the factors that influence Spanish surnamed [Hispanic/Latino] students in an online instructional media and technology course in the spring semester of 2005 at Kansas State University in Manhattan Kansas. The purpose of the study was to gain understanding and insight into the sociocultural factors influencing the digital divide as related to Latinos as a group. The digital divide as defined in chapter 1, is a term used to describe the gap between those who have access to and use computers and the Internet and those who do not. Latinos have traditionally lagged behind other racial/ethnic groups in the acquisition and use of computer and information technology devices. More specifically, the research question for this study was:

In what ways do sociocultural factors influence the success of non-traditional Latina pre-service teachers in a required online media and technology course?

The success of the non-traditional Latina pre-service teachers in the required online media and technology course was determined by course artifacts, which included: quizzes, skills tests, exams, course project, final grade and electronic correspondence (e-mail) with the instructor and researcher. The sociocultural factors investigated as influencing the success of the pre-service teachers in the online media and technology course were: generational status, English language ability, educational attainment, socio-economic status, and gender identity. For the purpose of this study, the researcher operationally defined the primary sociocultural factors as: 1) generational status refers to the number of years or generations each participant's family lived in the United States; 2) English language ability was determined by the researcher, a former English teacher, based on each participant's use of conventions in written and spoken classroom work, e-mail communications, and interviews as well as the language assistance they needed to speak and comprehend course readings and lectures; 3) educational attainment was determined by the level of each participant's post-secondary education; 4) socioeconomic status was determined by the income and occupation of each participant and her immediate family members and her computer ownership and internet access, and 5) gender identity was determined based on gender roles within each participant's family as well as family responsibilities, support systems and conflicts. These sociocultural factors were explored through: observations by the participant

researcher, including the collection of video and audio recording of video conferenced classes; individual, semi-structured in-depth interviews with participants; and program documents, consisting of registration forms, demographic data and academic transcripts

The information in this chapter is organized in the following sections: 1) research design, 2) setting, 3) data collection, 4) data analysis, and 5) establishing trustworthiness

Research Design

Using a naturalistic exploratory case study, as the method of inquiry, the researcher sought to understand the ways in which sociocultural factors influenced Latina students' success in a required online instructional media and technology course while enrolled in a distance-based pre-service elementary teacher education program through Kansas State University. Naturalistic inquiry allows for inclusion of the participant's thoughts, beliefs and interpretations of the phenomenon being studied, as this is the environment in which they live (Lincoln & Guba, 1985). Naturalistic inquiry allows for the exploration of tacit knowledge, that which is known or experienced by the participant but difficult to explain to others (p.195).

Additionally, the Chicana feminist epistemology for educational research was used as the cultural lens through which the data were analyzed. Chicana feminist epistemology is grounded in Latina Critical Race Theory (LatCrit). It adds to the foundation of perspectives unique to Latinas by "going beyond the commonalties of women's experience and examine how family backgrounds, school practices, male privilege, class and ethnic discrimination shape Chicanas' educational experience and choices", Bernal (1998). This study evolved through observations of the researcher and insights provided by the participants for a greater understanding of the issues related to their success as non-traditional Latina pre-service teachers who are place-bound and rely on technology to obtain their educational goals. This study is well suited for naturalistic inquiry, as this methodology views the human-as-instrument and is based on a social or human problem within a natural setting (p. 192). Data analysis focused on the patterns, constructs and commonalities within the participants' shared experiences related to successful completion of the instructional media and technology course, particularly in relationship to the sociocultural factors of 1) generational status, 2) English language ability, 3) educational attainment, 4) socioeconomic status, and 5) gender identity as previously operationally defined.

Setting

The setting for this study is the southwestern region of Kansas. In general the western counties in the state are the less populated and more diverse compared to the rest of the state. In January 2007, the U.S. Census reported that Hispanics make up 25 - 49% of the population in southwestern Kansas. Reported ethnic/racial groups in the state of Kansas are 89% White and only 8.6% Hispanic. The majority of the economy of the region is based on agriculture, farming and ranching and reported average incomes are less than $40,000.00.

Given the rural nature of the area, post-secondary education and occupational opportunities are limited. Dodge City and Garden City are the home to community colleges. These two-year colleges provide the majority of the post-secondary educational opportunities in the region. The enrollment estimates for both community colleges are approximately 2,000 students per year. Dodge City Community College reports that 14% of their students are of Latino descent, while Garden City Community College reports their Latino enrollment as 17%. The listed enrollment of White students is 70% and 75% respectively (U.S. College, 2006). Due to the limited educational opportunities and the lack of four year institutions in the area, partnerships with Kansas State University, Fort Hays State University and Emporia State University have been forged through the Kansas Board of Regent's initiatives and federally funded programs in an effort to increase accessibility to post- secondary education for the place-bound residents in the southwestern region of the state.

In an effort to meet the need for access to post-secondary education and for highly qualified teachers, the *AccessUS,* teacher education program was developed in 2007 at Kansas State University, with support from the Kansas Board of Regents, to provide teacher education programs in southwest Kansas. The *AccessUS* teacher education program was part of a larger initiative at Kansas State University, the *Equity and Access* Project, initiated in 2003 to design, implement, evaluate, institutionalize, and disseminate a multi-institutional collaborative teacher preparation model to address the continuum of teacher development and recruitment, through undergraduate preparation, early career induction and continued professional growth. The *AccessUs* program was designed to increase the number of highly qualified and greatly needed teachers in southwest Kansas by offering a distance-based elementary teacher licensure program with an endorsement in English as a Second Language (ESL). The *AccessUs* program also provided modest scholarship funds for participating pre-service teachers.

Considering the location of the participants and the 300 mile distance between Southwest Kansas and Kansas State University, video teleconferencing technology was the main method for providing student access to the teacher education curriculum. The video conferencing system was based on the Telenet2 system linked from Kansas State University to off-site locations in rural areas of southwestern Kansas. Telenet2 is a Kansas statewide educational video conferencing network (TELENET 2) that began in 2003. The Telenet2 system carries two different signals for connectivity, ISDN (Integrated Services Digital Network) or an IP (Internet Protocol). The ISDN signal capacity at the site locations is 128K and up to 384K at K- State. The strength and diversity of the signals helped to meet the needs of students at distant locations. Since 2003, the Telenet2 system had utilized poly-com brand video conferencing units that have a camera and microphone built-in to one unit that processes video and audio signals through big screen television sets available at both locations, so as to involve all participants in the video conference. Participants and instructors were able to see and hear each other simultaneously. This system allowed for face-to-face instruction and immediate feedback during scheduled class times.

The Access US teacher education program required students to complete an online instructional media and technology course, identified as DED 318 in the course catelog. This was a 16-week course in which students and instructors met for approximately two hours bi-weekly via the teleconferencing system. The Instructional media and technology course was provided only online; therefore, student participants were required to have access to both a computer and Internet service in order to complete course assignments. Minimum technology requirements for the DED 318 course are listed in Appendix B.

Participants

Participants in this study were recruited from high schools, school districts, and community colleges in the southwestern region of the state as part of the *Equity and Access Project*. Scholarship support was provided through the Access University Systems (*AccessUS*) initiative supported by the Kansas Board of Regents and the Western Kansas Partnership. Students were recruited over several months through meetings with paraprofessionals, district administrators, and community college advisors using brochures that highlighted the *AccessUS* scholarship program. All participants were seeking a Bachelor of Art in elementary education with an endorsement in English as a Second Language.

The majority of those recruited were Latina, non-traditional, bilingual community college students who were place-bound (Sheilds, 2004) and had been working as full-time paraprofessionals assisting with English as a Second Language Learners (ELLs) in various grade-level classrooms in the local school districts. These recruits were know as the *AccessUS* students and were required to: (1) have completed 40 college credit hours in general education and (2) maintain a grade point average of 2.5 while enrolled in general education and pre-professional coursework through Kansas State University.

Sampling

This study was limited to students enrolled in course DED 318 Instructional Media and Technology offered through Kansas State University via distance education. The researcher used purposeful sampling (Lincoln & Guba, 1985) to ensure that the sample was representative of the population of interest, namely Latina, non-traditional, pre-service teachers. Although eleven students were enrolled in the instructional technology and media course, only nine of the enrolled students met the purposeful sampling of the parameters of the study, namely being of Latino background. Of the nine students selected for sampling, only eight agreed to fully participate in the study. It is interesting to note that although this study was not intended to focus on gender; only females were enrolled in the teacher preparation curriculum through the *AccessUS* program at the time of sampling.

As a qualitative study, the parameters discussed in the setting and participant sections of this chapter, represent a bounded system. A bounded system is defined by Stake (1994), as, "an institution, a program, a responsibility, a collection, or a population". Within the bounded system, the boundaries are kept in focus. What is happening within the boundaries is what is considered vital and determines what the study is about. As a bounded system, this study investigated the complex, interrelated elements that occurred within the system that made up the case or phenomenon to be studied (Denzin & Lincoln, 2000). In this study, being Latina non-traditional females, living in a rural area, place-bound by family and financial obligations, and taking an on-line instructional media and technology course as part of a distance-based teacher education program created shared experiences of those within this system that became the area of focus for the researcher.

Data Collection

The primary purpose of data collection was to gain a deeper understanding of the sociocultural factors that influenced the success of these non-traditional Latina pre-service teachers in a required online instructional media and technology course. Data for the study came from several sources, 1) course artifacts, to include: quizzes, skills tests, exams, course project, final grade and electronic correspondence (e-mail) with the instructor and researcher, 2) observation by the participant researcher, including the collection of video and audio recording of video conferenced classes, 3) individual, semi-structured in-depth interviews with participants and, 4) Program documents, consisting of registration forms, demographic data and academic transcripts.

Course Artifacts

Course artifacts were the primary data source for evidence of student success in the required on-line instructional media and technology course, DED 318. These artifacts included ten quizzes, three skills tests, three exams, one final course project, the final grade for each pre-service teacher and e-mail questions and responses. Each of the quizzes and exams were taken via the K-State Online system as multiple-choice, randomly generated questions. Skills tests were performed on a computer using word processing software such as *Microsoft Office* programs as Word, Excel and/or Power point and uploaded via the same system. Due to the size of the final project, a classroom unit that demonstrated the application of technology for teaching and learning, students were encouraged to put it on a disc. Examples of assignments can be found in Appendix C. The final grade is based on all scores entered at the completion of the term. The instructional media and technology course was designed to be online therefore e-mail communication was the primary means of distributing messages to students as well as providing information throughout the course. A total of 89 e-mails between participants, instructor and researcher were gathered for analysis throughout the course.

Observational data

"Social Scientists are observers both of human activities and of the physical setting in which activities take place" (Angrosino & Perez, 2000). In this study, observations were used to gather additional insights into the sociocultural factors influencing the success of the students in

the on-line instructional media and technology course. Observations were conducted in two ways, via video conferencing and during live personal interviewing. During the 16-week course, participants, instructor and researcher met via interactive video conferencing (Polycom) during weeks 1, 3, 5, 7, 9, 11, 13 and 15 in an effort to facilitate the two-thirds face-to-face instruction required by the *AccessUS* educational program model. Video conference sessions were approximately two hours in length and were audio and video taped for transcription, evaluation and analysis. During course sessions, the researcher was introduced to the participants as a co-instructor and actively participated in the class discussion. The participants accepted the researcher as a constant, regular contributor during course sessions as well as an available resource outside of class time presentations. Following naturalistic inquiry, the researcher acted as a participant observer, conducting investigations in the natural setting (Lincoln & Guba, 1985). The researcher engaged in taking notes about student postures, expressions, types and context of questions asked during course discussion and interview sessions. These observations aided the study by providing insight into the commonly shared sociocultural factors experienced by the researcher and the participants as members of the same sociocultural group. During sessions, the participants and researcher occasionally greeted one another in Spanish or used the language to clear up misconceptions, instructions or simply for clarification.

Personal Interviews

In data gathering, interviews are a form of conversation that is negotiated between the researcher and the participant (Fontana & Frey, 2000). Semi-structured personal interviews were a primary source of data for identifying the most common sociocultural factors that this particular group of non-traditional Latina pre-service teachers perceived as influencing their success in the required online instructional media and technology course. Interview questions focused on demographic information such as generational status, educational background, family and occupational obligations, prior technology experiences and future aspirations.

The researcher traveled to southwestern Kansas for a two day stay in the spring semester to conduct face-to-face interviews. The researcher attempted to make the participants as comfortable as possible in an effort to gain insight into their personal lives and feelings by setting up interviews around their schedules. Therefore, interviews were conducted in multiple locations. Additionally, the researcher allowed for the participants to speak in the language with which they were most comfortable. Allowing participants to speak in either English or Spanish

during the interview allowed participants' natural voice to be expressed and increased trustworthiness and confidence in their responses. Throughout the individual interview multiple participants code-switched between their native Spanish language and English. One participant preferred Spanish; therefore most of the interview was conducted in her native language. Due to the researcher's lack of proficiency in Spanish, the participant often had to clarify the response by repeating it in English. Overall, the participant's acceptance of the researcher's language limitations increased the familiarity and confidence between the participants and the researcher.

The purpose in conducting these interviews was not to test a hypothesis or to evaluate participants' shared experiences, but to gain insight and understanding of the value of the experience for the participants (Patton, 1990). Once interviews were completed, participants were directed to contact the researcher via phone or e-mail should they decide to add or elaborate on any thoughts, experiences or questions they might have that could add to the data. The personal interviews were semi-structured and varied in length. The average interview time with each participant was 45 minutes to two hours, with limited follow-up interviews via phone and email (Creswell, 2007; Patton, 1990). The interview protocol can be found in Appendix D.

Program documents

Program documents provided additional understanding of the sociocultural factors influencing the success of the students in the on-line instructional media and technology course. These documents included registration forms, academic advising forms, degree plans, and transcripts. The student registration form, generated by the Division of Continuing Education at K-State, was divided into three sections: demographic data, federal reporting data, admissions information and course assignment. A fourth section is financial information and student signature. Included in the demographic and federal reporting data was: name, address, date of birth, phone numbers, e-mail, gender, military status, and race/ethnicity. Academic advising forms provided additional demographic data and course enrollment information. The degree plan and transcripts indicated the semesters enrolled and the courses taken through completion or withdrawal from the *Equity & Access* teacher education program. Program documents were used as a secondary source of information to substantiate or clarify data gathered through observations and interviews

Role of the Researcher in data collection

Prior to collecting interviews and course artifacts the researcher participated in the course, corresponded with the participants by e-mail and offered assistance and advice throughout the semester in which the DED 318, instructioal media and technology course was completed. The participants were aware that the researcher was in no way responsible for determining the grade or the value of any assessments throughout the course. The researcher was only given access to course assignments once the course was completed and final grades submitted.

As members of a cohort within a grant-based project, students provided written permission for all written and electronic materials (both course- and program-related) to be used for research purposes. The overarching grant, the *Equity & Access* Partnership, followed the guidelines for research involving human subjects established by the Institutional Review Board (IRB) of Kansas State University. For this study the researchers submitted a supplemental addendum (Appendix D) to the existing IRB to gain approval to collect data particularly related to students' personal experiences. Each of the eleven participants was presented an individual consent form in person, which included information regarding participant rights to anonymity and confidentiality (included in IRB Addendum). As mentioned previously, only eight participants met the criteria for this study. The researcher also requested and gained additional permission to access academic information and grant related program records on participants during the individual, face-to-face interviews. The researcher will continue to store all consent forms separately from interview data collected. All interview data has been digitized, therefore all video and audio tapes as well as program data remains securely locked away in the researcher's office. Each of these procedures was established to protect the security and confidentiality of the data. Confidentiality of the data was further established by assuring participants that any information given would be held in confidence and was coded in such a way that only the researcher could identify the participants.

Data Analysis

The researcher used a thematic approach for analysis based on the professional literature. As described above, multiple pieces of data were collected: 1) course artifacts, to include: quizzes, skills tests, exams, course project, final grade and electronic correspondence (e-mail) with the instructor and researcher, 2) observation by the participant researcher, including the

collection of video and audio recording of video conferenced classes, 3) individual, semi-structured in-depth interviews with participants and, 4) Program documents, consisting of registration forms, demographic data and academic transcripts. Course artifacts were used to determine the success of the eight non-traditional Latina pre-service teachers in the required online media and technology course. The remaining three sources of data, observations, interviews and program documents, were used to examine sociocultural factors that impacted the success of these pre-service teachers. Each piece of data was analyzed multiple times to identify thematic categories and then common patterns in the data across the thematic categories.

Based on the research question, all data was separated into two overarching headings: 1) *student success in the online instructional media and technology course*, and 2) *sociocultural factors that influenced student success*.

Table 3-1 Student Success

Student success in the online instructional media and technology course	**Sociocultural factors that influenced student success**
• Unsuccessful Students • Successful Students • Highly Successful Students	• Generational status • English language ability • Educational attainment • Socioeconomic status • Gender Identity

Course artifacts were used to place the pre-service students into three categories within the first heading of *student success in the online instructional media and technology course*. These three categories were: *unsuccessful students*, *moderately successful students*, and *highly successful students*. The final placement of each student, in the end, was determined by overall course points, along with individual performance on each quiz, skills test, exam, the final project,

and final grade. The rationale for placing each pre-service teacher in one of three categories, the course artifacts themselves, and the final designation of each student as unsuccessful, moderately successful, or highly successful was examined by the researcher's major advisor through the process of Peer Review. Both researcher and peer reviewer agreed with the final placement category for each student.

Data from observations, interviews, and program documents were placed into the second heading of *sociocultural factors that influenced student success*. Each piece of observational, interview, and program document data were read multiple times and coded into five thematic categories using the sociocultural factors identified in the literature as: 1) generational status, 2) English language ability, 3) educational attainment, 4) socioeconomic status, and 5) gender identity. Data was coded into each of these 5 thematic categories using the operational definitions of each category generated by the researcher: 1) generational status refers to the number of years or generations each participant's family lived in the United States; 2) English language ability was determined by the researcher, a former English teacher, based on each participant's use of conventions in written and spoken classroom work, e-mail communications, and interviews as well as the language assistance they needed to speak and comprehend course readings and lectures; 3) educational attainment was determined by the level of each participant's post-secondary education; 4) socioeconomic status was determined by the income and occupation of each participant and her immediate family members and her computer ownership and internet access, and 5) gender identity was determined based on gender roles within each participant's family as well as family responsibilities, support systems and conflicts. During data analysis, it was found that several items could be cross-coded as they fit naturally into more than one thematic category. After data was coded into the initial five thematic categories, subcategories were generated from themes within the data. A Peer Review process was used once again to reach consensus regarding the coding of data from observations, interviews, and program documents into the five thematic categories and subcategories.

After all pieces of data had been coded, the researcher re-examined the classroom observations, interviews and program documents to identify commonalities among the data as it related to the sociocultural factors (Miles & Huberman, 1994). These results will all be presented in chapter 4.

Establishing Trustworthiness

Trustworthiness refers to the standards used in a qualitative study that increase the probability that credible findings are produced. Lincoln and Guba (1985) provide four main activities for strengthening the trustworthiness of a qualitative study: credibility, transferability, dependability, and confirmability.

Credibility

The researcher employed several techniques discussed by Lincoln and Guba (1985) including the interpretation of credibility along with their operational definitions of what it means for a study to be credible. They described the following "three activities for increasing the probability that credible findings will be produced…prolonged engagement, persistent observation, and triangulation (p. 301). Prolonged engagement is, "the investment of sufficient time to achieve certain purposes: learning the culture, testing the misinformation introduced by distortion, and building trust" (Lincoln & Guba, 1985, p. 301). In this study, the researcher accompanied K-State recruiters to assist in the recruitment and enrollment of students into the *AccessUs* and *Equity & Access Partnership* prior to conducting the study. The researcher was a constant participant and acted as support for both the instructor and the participants throughout the instructional media and technology course. Persistent observation is used to identify those characteristics and elements in the situation that are most relevant to the problem or issue pursued and focus on them in detail (Lincoln & Guba, 1985). Observations were made throughout the 16-week semester the course was conducted. As the course met bi-weekly, notes describing the participant's postures, questions and participation were taken for later analysis. The sessions were audio recorded and transcribed for analysis as insight into the participants needs throughout the length of the course. During observation, the researcher focused on the requests made by the students, their attitudes, behaviors and took particular notice of the times that participants reverted to their native Spanish language for clarity in an effort to gain as much detail for the study as possible.

Although the study consisted of a small sample size of eight participants, triangulation through a variety of data collection methods was utilized to increase the credibility of the findings. The researcher triangulated the data by including 1) course artifacts, including: quizzes, skills tests, exams, course project, final grade and electronic correspondence (e-mail), with the instructor and researcher, 2) observations by participant researcher, the collection of video and audio recording of

video conferenced classes, 3) audio and video taped individual, semi-structured in-depth interviews, and 4) Program documents consisting of registration forms, demographic data and academic transcripts. The collection of multiple data by the researcher allowed for the exploration of themes and categories as they emerged throughout the study.

Peer debriefing also helps build credibility by allowing a peer who is a professional outside the context and who has some general understanding of the study, to analyze material, and listen to the researcher's ideas and concerns. This process helps the keep the researcher "honest" (Creswell, 1998; as cited in Lincoln & Guba, 1985; Merriam, 1988). The peer reviewer is responsible for assuring the researcher is following ethical and methodological guidelines while involved in a study. The researcher met with a peer reviewer, her major advisor; periodically throughout the data collection and constantly during the data analysis process. The peer reviewer's knowledge of the federal and state grants within which the participants were enrolled was invaluable in understanding the group dynamics as well as the sociocultural patterns of the participants. The benefit of this expertise helped the researcher to remain focused on the research question as well as helped the researcher better understand her role. Using a peer reviewer increased the likelihood that the researcher has produced credible findings.

Transferability

Transferability in this study was enhanced through the use of thick, rich descriptions of the participants, the settings, the course artifacts and the sociocultural factors related to the success of Latina, pre-service teachers in a required online instructional media and technology course. This thick, rich description allows the reader to assess the information provided and make decisions about its transferability to additional studies (Creswell, 1998). The researcher can only provide details to assist in understanding the context and circumstance of the events being described; the reader must decide its application based on the shared characteristic to other settings.

Dependability

Dependability is the extent to which the findings of the study can be repeated while observing the same results under different situations and/or time frames. In order to ensure that the results were as dependable as possible, the researcher used triangulation, prolonged engagement, and persistent observation (previously described) to ensure that as many aspects of the current study as possible were examined in different contexts and from multiple perspectives

across a prolonged period of time. In the data collection section above, the researcher provided details regarding the collection of data from multiple perspectives in various contexts across time to ensure dependability and thus credibility.

Confirmability

Lincoln & Guba (1985, p. 318) suggest confirmability be established by creating an audit trail of the "product – the data, findings, interpretations, and recommendations" of a study or inquiry. The researcher maintained an audit trail by maintaining digital documents of course artifacts archived within the K-State Online (KSOL) system, original audio and video recordings of the personal interviews and video conference proceedings, as well as transcripts and program documents as the evidence of the research process. Each piece of data that was collected along with the mapping, organizational notes created while analyzing the data for thematic categories along with the researcher's own reflections, have been preserved as the audit trail.

Summary

This study is an attempt to understand and describe the sociocultural factors that influence the success of non-traditional, Latina pre-service teachers in a required online instructional media and technology course through the use of qualitative, naturalistic research methods. The study was intended to answer the following question: *In what ways do sociocultural factors influence the success of Latina, non-traditional, pre-service teachers in a required online instructional media and technology course?* This chapter provided a detailed contextual description of the participants and their setting as well as a discussion of the unique characteristics shared by the participants. This chapter also included a discussion of the design including the data collection and analysis methods and strategies used to establish trustworthiness of the study.

Chapter 4 - Findings

In this study the researcher sought to gain understanding and insight into the sociocultural factors influencing the digital divide as related to Latinos as a group. In order to gain this understanding, the researcher selected a required online course in which a number of Latinos were enrolled. The researcher then posed the following question for study: *In what ways do sociocultural factors influence the success of non-traditional Latina pre-service teachers in a required online media and technology course?*

Course artifacts served as the primary source of data used to determine successful completion of the course. These artifacts included: quizzes, skills tests, exams, a course project, a final grade and e-mail correspondence. The course artifacts included formative, summative and authentic measures of students' success in the course. E-mail correspondence further supplemented assessment tools as observational data that shows the types of questions generated by the students regarding their use and comfort with computer technology and Internet access as the primary means of communication and evaluation for the course.

In addition, the researcher collected semi-structured personal interviews and program documents to identify the sociocultural factors influencing the success of the students in the course. One-on-one individual interviews were conducted with the participants. Each interview ranged from 45 minutes to over two hours in length and provided rich data related to sociocultural factors that influenced the success of the Latinas in this study. For the purpose of this study, the researcher operationally defined the primary sociocultural factors as: 1) generational status; 2) English language ability; 3) educational attainment; 4) socioeconomic status, and 5) gender identity.

In this case study, the researcher followed Creswell and Stake's (1998, 1995) recommendations for analysis and interpretation of the data; categorical aggregation, direct interpretation, establishment of patterns and the development of naturalistic generalizations. As is the nature of a qualitative study, data management for analysis is a challenge due to the volume of information collected. Data was managed by first separating all documents, including interviews into two headings, student's successful completion of the instructional media and technology course and the sociocultural factors that influenced successful completion.

In examining the data under two separate headings, the researcher was able to evaluate all course artifacts for their academic value through the process of direct interpretation, by pulling the data apart and looking for patterns. While looking for patterns, a race-gendered epistemology, as defined by Delgado-Bernal in 2002 in the field of Latina Critical Race Theory [LatCrit] was used to explore the perspectives and experiences of the participants. Using this inquiry-based methodology and a cultural lens through which to view the data, allowed the researcher an opportunity to relate to the group through shared cultural experiences while documenting participants' unique perspectives. Through open coding methods, the researcher was able to give structure to the data as themes and sub-themes emerged. During data analysis, it was found that several items could be cross-coded as they fit naturally into more than one thematic category.

The chapter is divided into several sections. The first section provides demographic details about the eight Latina non-traditional students in this study to give context to the sociocultural factors related to their success in the required online instructional media and technology course. The second section is the interpretation of the numeric assessment provided by the course artifacts that ultimately provide evidence of student overall success in the course. The final section discusses the findings of the study by sociocultural factors and the degree to which these factors influenced the success of students in the course.

Demographic Information

Study participants were recruited from community colleges in the southwestern region of the state through the Kansas Board of Regents' Access University Systems (*AccessUS)* and the *Western Kansas Partnership*. All participants were seeking a bachelor of science in elementary education with an emphasis in English as a Second Language (ESOL). The Instructional Technology and Media course was one of the first in the sequence of requirements for the students. All of the students were living in Dodge City, Kansas and were seeking an opportunity to pursue degrees in higher education that has previously been unavailable due to location. All eight of the Latinas in this study are of Mexican heritage.

Participant names have been changed to protect their identity. Three of the participants, Sandra, Raquel, and Janie were born in Mexico and moved to the United States. They reported moving to and from Mexico and finally settling in Dodge City no later than third grade. Four of

the participants, Elvira, Helen, Melinda and Connie were born in the United States to immigrant parents, and have lived in multiple states; they are first generation U.S. born. Lupe is the only participant in the study who is currently a Mexican citizen in the U.S. on a student and work visa since 2000, when she came to Dodge City as a junior in high school. The average age of the participants in this study is 39. Several of participants are married with one or more children. Five of the eight participants, Elvira, Lupe, Helen, Melinda, and Janie graduated from Dodge City High School. The other three participants, Sandra, Raquel and Connie were high school drop-outs, but earned their General Equivalency Degree (GED).

Analysis of Course Artifacts

In this section, the researcher presents the findings of the study in two ways. The first is the analysis of all academic materials to determine the successful completion of the online instructional media and technology course. In chapter 3, the researcher defined the degree to which students were successful in the completion of the course as *unsuccessful, moderately successful* and *highly successful*. Course artifacts and analysis of student scores were used to determine academic success. All students showed some degree of successful use of computer software and Internet accessibility, as all assessments were submitted and evaluated through the K-State On Line system (KSOL) which requires students to have access to a computer as well as a stable Internet connection for uploading assignments and accessing tests and exams.

Course artifacts were evaluated to differentiate the level of students' academic success (numeric value) and included scores on quizzes, skills tests, exams, a course project and the final grade given for the course. Each of these assessment pieces represented student's demonstrated ability and/or skill level. The quizzes were more frequent formative assessments taken ten times throughout the length of the course. The three skills tests assessed the students' ability to apply technical computer skills using *Microsoft Office* software programs: *Word, Excel* and *Power point* for the development of classroom tools. Course exams were given three times; these summative assessments were spaced throughout the semester in order to measure the students' knowledge of the course content. The course project was an authentic assessment tool designed to determine the extent to which students were able to demonstrate skills and knowledge gained from the course in the preparation of a classroom lesson. The final course exam was the summative evaluation for all course content and had the highest point total per assessment

included in the final grade. The following chart shows the outcome of each of the "assignments" or "work" that each student produced.

Table 4-1 Assessment of Course Artifacts

Student	Quiz Scores (3.0 value)										Skills Test (3.0 value)			Tests (12.0, 12.0, 15.0 value)			Final Proj 15.0	Coure Grade (100 value)
P001 (Sandra)	L1 3	L2 3	L3 3	L4 3	L5 3	L6 3	L7 3	L8 3	L9 3	L10 3	SK 1 3	SK2 3	SK 3 3	T1 12	T2 11	T3 N/A	15	77/100
P002 (Raquel)	3	3	3	3	3	3	3	3	3	3	3	3	3	5	6	18	14	74/100
P003 (Elvira)	3	3	3	3	3	3	3	3	3	3	3	3	3	11	8	18	15	91/100
P005 (Lupe)	3	3	3	3	3	3	3	3	3	3	3	3	3	9	10	21	11	90/100
P006 (Helen)	3	3	3	3	3	3	3	3	3	3	3	3	N/A	11	10	18	N/A	75/100
P007 (Melinda)	3	3	3	3	3	3	3	3	3	3	3	3	3	11	11	20	15	96 /100
P008 (Janie)	3	3	3	3	3	3	3	3	3	3	3	3	3	9	8	14	12	82/100
P010 (Connie)	3	3	3	3	3	3	3	3	3	3	3	3	3	11	10	18	15	93/100

Formative assessment analysis

The 10 quizzes each week consisted of three test bank generated multiple choice questions worth 1 point each for a total of 3 points per quiz. The 10 quizzes were submitted online through the K-State Online (KSOL) course page each week for ten weeks. All students submitted by the deadline date. The system was set to close on specific due dates and no exceptions were made. The students had no trouble with these frequent, formative assessments. All students scored a maximum score of "3" on each of the 10 quizzes. There was no difference in scores for quizzes for all eight students.

Summative assessment analysis

Summative assessments consisted of two types of assignments, skills tests and exams. Three times during the semester students were given a skills test. Skill test #1 required the use of *Microsoft Word*, skill test #2 required the use of *Microsoft Excel* software and skill test #3 allowed for the choice between *MS Word, Excel or Power point*. Seven of the eight students completed all three skills tests and scored the maximum allowed, 3 points. One student, Helen did not submit skills test #3, she received a "N/A" in the place of a numeric score. The skills tests show that students all had basic knowledge and skills to be able to perform these skills tests.

The second set of summative assessments given were the three exams given at incremental intervals in the course to measure student's knowledge of course content. Six of the eight students showed a difference of one point between exams #1 and #2. Sandra and Lupe showed a rise in scores by one point; while Raquel, Helen, Janie and Connie had a difference in scores of 1 point between exam #1 and exam # 2. One student, Melinda, showed no difference between exam #1 and exam# 2 and one student, Elvira, lowered her score by 3 points on exam #2. Seven of the eight students increased their scores between exam# 2 and exam #3 by several points, including Lupe who increased her score by 11. One student, Sandra, failed to turn in the assignment and at the discreation of the instructor of record, received an "N/A", a non-numeric score. Unlike the quiz assignments, exceptions were given for students unable to complete tests by the due dates. If the student e-mailed the professor of record to request a later test date, he allowed for additional time to complete any of the three exams.

Authentic assessment analysis

The course project is an authentic assessment tool designed to determine the extent to which students were able to demonstrate the skills and knowledge gained from the course in the preparation of a classroom lesson. Four students, Sandra, Elvira, Melinda and Connie all received a maximum score of 15 for their projects. Lupe scored the lowest, 11, on the assignment. Helen failed to turn in the project, at the discretion of the instructor of record, she received a "N/A", non-numeric score for the assignment. Due to the size limits within the K-State Online (KSOL) system, students were required to send their final project assignment to the instructor on a CD. This was the only assignment not digitally accessible to the researcher.

Final grade analysis

In determining successful completion, all course artifacts were analyzed and interpreted based on numeric value. The following chart shows the results of evaluation.

Table 4-2 Student Assessment

Unsuccessful Students	***Moderately Successful Students***	***Highly Successful Students***
0	Sandra - final grade 77 Raquel – final grade 74 Helen – final grade 75 Janie – final grade 82	Elvira - final grade 91 Lupe – final grade 90 Melinda – final grade 96 Connie – final grade 93

Although the final grade indicates that all students successfully completed the course, the course grade does not tell the whole story. There was a 19-point difference between final course scores and a fairly easy separation between moderately successful and highly successful students. However, if students had received a zero in place of "N/A", non-numeric scores, for missing assignments, at least two students, Sandra and Helen, would not have been successful; they would have failed. To some extent, the instructor of record influenced the data. Had he given the earned scores, two of the eight students would not have passed the course. As it is, all eight students earned a C or better in the final grade assignment.

Since the researcher sought to understand the influence of sociocultural factors on student success in this course, a closer investigation into the role of sociocultural factors was needed.

Analysis of Sociocultural Influence on Success

In chapter 3, the researcher defined sociocultural factors as: 1) generational status refers to the number of years or generations each participant's family lived in the United States; 2) English language ability was determined by the researcher, a former English teacher, based on each participant's use of conventions in written and spoken classroom work, e-mail communications, and interviews as well as the language assistance they needed to speak and comprehend course readings and lectures; 3) educational attainment was determined by the level

of each participant's post-secondary education; 4) socioeconomic status was determined by the income and occupation of each participant and her immediate family members and her computer ownership and internet access, and 5) gender identity was determined based on gender roles within each participant's family as well as family responsibilities, support systems and conflicts. The following chart identifies each participant's sociocultural characteristics, as they relate to the factors previously indicated in the study.

Table 4-2 Sociocultural Factors

Student	**Generational status** *Number of years or generations in the United States*	**English Language Ability** *Participants' use of conventions and language assistance required*	**Educational attainment** *Post secondary education prior to program*	**Socioeconomic status** Income, *Occupation, computer ownership & Internet access*	**Gender Identity** *Gender roles in family and family responsibilities, supports, and conflicts: Marianismo and Machismo*	**Successful Completion of Course**
P001 (Sandra)	Immigrated from Mexico as infant. Will have full citizenship May 2007. Worries about immigration due to husband's status	Good communication skills. Code-switches to emphasize meaning; make point more clear.	GED	Para, husband works 2 jobs. She received full Pell-grants plus scholarship to assist with school. Home computer purchased used at pawn shop, no Internet	Married, 4 children, church, machismo husband (non-supportive)	Moderately successful

Student	Generational status	English Language Ability	Educational attainment	Socioeconomic status	Gender Identity	Successful Completion of Course
P002 (Raquel)	Immigrated from Mexico as infant	Good communication skills in speaking. Gets words mixed up when trying to elaborate.	GED	Has worked as a para for 12 yrs. Home computer purchased for course, not sure if laptop or desktop, cable Internet	Married, 3 children, supportive spouse. Oldest daughter has taken up the slack in household duties.	Moderately successful
P003 (Elvira)	US born 1st generation/ Native Am	Good communication skills. Uses high vocabulary words to describe events. Proper use of grammar.	HS	Para Home computer is a desktop owned for 5yrs (old) for school work, DSL	Single, family supportive of education. She has taken several different courses and is still trying to decide if she wants to be a teacher.	Highly Successful

Student	Generational status	English Language Ability	Educational attainment	Socioeconomic status	Gender Identity	Successful Completion of Course
P005 (Lupe)	Mexican citizen – student visa	Preferred Spanish for clarity	HS	Not Eligible for Federal Aid, works 3 jobs Home Computer is a 3-4 year old laptop, no Internet access	Single, family is in Mexico, lives with sister	Highly Successful
P006 (Helen)	US born 1st gen. Family was transnational for several years, until 3rd grade.	Good communication skills. Struggles with vocabulary and direct meaning.	HS, placed in up-ward bound program, AA degree	Para Home computer was bought by parents– 5 years old, DSL	Single, lives at home. Family definition of success interferes with educational & self- goals.	Moderately successful

Student	Generational status	English Language Ability	Educational attainment	Socioeconomic status	Gender Identity	Successful Completion of Course
P007 (Melinda)	US born 1st gen	Good communication skills. Uses college level vocabulary to identify, define and state thoughts	HS, BA degree	Para, Did not qualify for Pell due to income Home computer is 2 years old, Internet access, DSL	Married, 2 children, supportive spouse (non-Latino)	Highly successful

Student	Generational status	English Language Ability	Educational attainment	Socioeconomic status	Gender Identity	Successful Completion of Course
P008 (Janie)	Immigrated from Mexico as infant	Good communication skills. Struggles with appropriate word choice, constantly tries to clarify meaning, with "you know?"	HS	Not working right now. Is a stay at home mom. Feels the pressure of the need for an additional income. No home computer, no Internet access. Bought wrong device. Was thinking of purchasing one through "Blue Hippo" – tv ad	Married, 1 child, Machismo husband (no support). Reports that her mother is supportive – then contradicts assessment.	Moderately successful

Student	Generational status	English Language Ability	Educational attainment	Socioeconomic status	Gender Identity	Successful Completion of Course
P010 (Connie)	US born 1st gen	Good communication skills. Does struggle with proper grammar and word choice.	GED, Certification in computer software applications	Did not qualify for Pell – due to income. Spouse is in management at the beef packing plant. Home Computer is a laptop, has access to wireless, DSL	Married, 3 children, machismo husband (non-support). Is very concerned about finishing due to family obligations.	Highly successful

Generational Status

Generational status appears to have influenced success in this required on-line media and technology course, possibly due to their educational stability. Three of the four "highly successful" students in the class, Elvira, Melinda, and Connie were born in the United States. The fourth "highly successful" student, Lupe, was a Mexican citizen studying on a student visa. Only one student born in the United States was not "highly successful", Helen, and she was a transnational between Mexico and the United States until third grade. Educational stability, in the United States or Mexico, may have influenced these students. In addition, the length of time in the United States for three of the four "highly successful" students most likely influenced their good communication skills (although by itself communication skills had little influence on success), socioeconomic status, and educational attainment (three of the four "highly successful" students completed high school, one had a bachelor of art degree, and the fourth completed a certificate in computer software applications). The relationship between generational status and other sociocultural factors such as English language ability, educational attainment, and socioeconomic status indicates a linkage to acculturation. Acculturation is both the process of adopting the cultural traits or social patterns of another group and the result of this process.

On the other hand, three of the four "moderately successful" students, Sandra, Raquel, and Janie, were brought to the United States from Mexico as infants. Helen is actually a first generation born Mexican-American; however, her family moved between the United States and Mexico as transnationals. All four reported having missed schooling in the U.S. due to their immigrant status. In the interview with Sandra, she reported that the family traveled between Kansas and California. When Sandra was 8 years old and living in California, she did not attend school because of fear of immigration laws, discovery and possible deportation. She states,

> I guess back then… like at the time it was like, La migra! La migra! [fear of immigration officials]…so, they didn't wanna send me [to school] because we had just gotten here. When I was six, and in Kansas, kinda like we moved back and forth, like from place to place [Kansas to California]…[with] familia [family] and we didn't go to school. (Sandra, interview)

Helen would not have been successful in the on-line media and technology course had her missing quiz and final project been recorded as zeros. As they were reported as "N/A", no

score was given that could affect overall numeric grade. In Helen's case, having ties in both countries, lead to a delay in school and trouble with learning English,

> My dad decided to go back to Mexico for a year because my grandpa was sick... so we went and lived there and then when he passed away, we came back. And then, umm, every year, like I had a trouble, I was an ESL student…and in fifth I was already, umm yeah, it was just a ESL class where they were helping me with my Spanish. And I hada go to summer school every year since I was in school. Just so because they [school or teachers] always suggested it because of my Spanish. (Helen, interview)

As this quote illustrates, a lack of continuous schooling in the United States, does put immigrant students at risk of underdevelopment of important skills for success in post-secondary education.

English Language Ability

As a sociocultural factor, English language ability did not appear to influence the success of the students in the study. Through conversation, class discussion, e-mail correspondence and student work samples, it is evident that participants are able to articulate thoughts, ideas and understanding in English to meet the course requirements. Occasionally the participants seemed to have some struggle with English grammar and syntax, but not often enough to be a factor. For seven of the eight participants, academic English language proficiency is reported as being greater than their Spanish language proficiency due to the length of time they have been in the U.S. Standardized measures of language proficiency were not evaluated in this study; only participants' ability to complete coursework was examined with regard to English language proficiency. As previously noted, English language ability did not appear to be related to academic ability, but to generational status, due to the process of acculturation.

Educational Attainment

As previously mentioned, educational attainment of these students was related to generational status, as it is another indicator of acculturation. Educational attainment did appear to have some influence on success in the on-line media and technology course as three of the four "highly successful" students, Elvira, Lupe, and Melinda, completed high school and Melinda also completed a bachelor's degree. The fourth "highly successful student", Connie, had a GED, but completed a certificate in computer software applications. The other two students who left high school and completed a GED, Sandra and Raquel, were only "moderately

successful", and one of these, Sandra, would not have been successful if her missing assignments had been entered as zero's into the course grading system rather than "N/A"(non-numeric). Sandra began college soon after leaving school to complete a GED program at 16 years old, while Raquel waited close to 10 years, after having children and employment as a paraprofessional. However, two of the "moderately successful" students, Helen and Janie, also completed high school and Helen, who would not have been successful if her missing assignments had been recorded as zeros, completed an associate's degree as well. Additionally, all participants in the *Access US* scholarship program were required to have had 40 hours of college credit to be admitted. Therefore, educational attainment did not directly relate to successful completion of the course.

Interviews indicated the participants considered educational attainment important to their success and it motivated them to pursue further education. This is not surprising as educational attainment is considered a mark of success in our society. During the interview process, several participants shared their feelings about educational attainment:

> My parents didn't go to school, they only went to 3rd grade, pretty much both my mom and dad. And like, they never helped us with homework or anything that we had to, and I was the first. I'm the oldest. I got into upward bound, my brothers and sisters got into it too and they helped us with that and every summer I had to go to that program. They helped me a lot. (Helen, interview)

For Connie, one of the "highly successful" students, educational attainment motivated her success. It was a way out of heavy, manual labor, "… my dad still does hauling for harvestings and field work and stuff. And I'm like, ahhh, I don't want to be in the hot weather. Cold weather. I don't want that". For Sandra, the motivating factor for educational attainment is her family, "My children. My Kids (with a big smile) I want to show them something besides what I went through. I want to show them a completely different life. No poverty. I hope I can get out of the poverty range (sigh)". Educational attainment has personal and economic value for these students.

Socioeconomic status

As previously mentioned, socioeconomic status is tied to generational status as a degree of acculturation, similar to English language ability and educational attainment. Five of the eight participants in this study qualified for financial aid. Three of the four "highly successful"

students did not qualify for financial aid whereas all four of the "moderately successful" students did qualify for financial aid. For Sandra and Janie, their economic situation directly impacted their ability to complete assignments on time. Sandra requested time extensions on two of the three exams with e-mails to the instructor similar to this request: "I was out of town for the Easter weekend. I am sorry. I also don't have the net except at work. I know I need it, but right now I cannot afford it." Janie talks about not being able to afford a computer in the home to complete her assignments,

> [regarding course assignments]..but now its like you have to type it and e-mail it. …And my credit doesn't help me at all [to finance a computer]. Because if I would have good credit, I would probably have one [computer] at home right now. But…how do I say this? Our salary doesn't allow us to have extra stuff [such as home computer or Internet service]. (Janie, interview)

Janie mentioned financial difficulties more than once during her interview. The interview was conducted in her home because the family has only one car and she did not have transportation or childcare at the time of the interview. She is frustrated about not working, because she is trying to be home to raise her five-year-old son, yet she believes that completing her degree and working will relieve the financial stress for her family.

Socioeconomic status can be a motivator as well as an inhibitor of success. Sandra and Janie were strongly influenced by socio-economic issues as the only two participants in the study who did not own a home computer and had limited access to locations that provided access. Sandra often relied on her elementary school to allow her access to a computer, during the times when the students were in recess, before school or after school to attempt to complete her assignments and submit them online. This worked out for a few weeks, until one of the cooperating teachers complained to the principal that school computers were not for personal use. Sandra then tried to purchase a computer from a pawn shop. However; the computer was old, somewhat limited and she could not afford Internet access. In the cases of both Sandra and Janie, the lack ability to afford a home computer and Internet service were direct factors in turning in assignments online.

Gender Identity

Gender identity influenced the success of all of the participants in this study. The women in this study, struggle with gender expectations that are implicit in every aspect within the

Hispanic culture, these unwritten rules of behavioral expectations, attitude, and ways of "being" are unwritten and difficult to define, this *Maria Paradox*, described by psychologists, Gill, & Inoa-Vasquez (1997) can cause Latinas great stress and anxiety in their perception and interpretation of family expectations. Like women of other racial/ethic groups Latina women often play the role of mother, homemaker, wife and assistant provider (second income), but tend to feel as though it is their obligation to do all things well without assistance. The women in this study tend to share the same experiences as the women described in the case studies found in the book, *The Maria Paradox:How Latinas Can Merge Old World Traditions with New World Self-Esteem* written by Gill & Inoa-Vasquez. Like most women, many of the things that motivate the women in this study, also create the greatest amount of stress directly impacted their general educational attainment throughout their program of study. *Machism*o is not unique to Mexican culture, but it runs deep. Even for third generation U.S. born Latinas, the call to be a dutiful, wife and mother out weights acculturation trends or the call for gender equity. These traditional gender roles conflict with self-efficacy, thoughts and feelings about one's self, therefore; the participants in this study stuggled with how to make a better future for themselves and the family.

In this study, five of the eight participants are married and have children. Their frustration in being trapped in the role of a *Marianism*o is evident. The sense of guilt that they expressed at not being a "good mother" because they consider it neglecting the needs of their families while attending class a few times per week permeates their responses. Although they find ways to justify their need to attend class, they still feel guilty about going.

On the night of the interview, Sandra, a "moderately successful" student who would not have been successful if her final missing test had been recorded as a zero, was very much aware of the time constraints and the expectations of her family, particularly her husband. She tells a story about a discussion she had with her spouse shortly before this interview:

> Me dice, ¿Oyes hija, ándale pues, cuando vas a terminar? Es que esta llevando mucho tiempo. Le digo que dos años para una persona quere dicha 15 horas para estudiar. Que tengan 5 clases al día. Yo no tango 5 clases. So va ser cuatro años. Luego estábamos enojados y el dice, "ándale que va ser una privilada que yo te ayude. Porque primeramente yo soy Mexicano. Aquí nosotros no nos creamos en eso. Por nosotros, es la familia. Ahora que tipo de mama tenemos si no tenemos mama?" Y le dije pos desolvida que la mama esta trabajando para que ustedes tengan algo mejor. Yo, con tigo con tu situación de inmigración, yo no me apoyo en eso y yo no se cuanto tiempo tu vas

> estar aquí. Entonces, me dice…Y luego me dice, Si, pero no no mas a ti te esta cuestando tu educación, también a mi y a los niños .(Sandra, interview)

Her husband is asking her when she is going to be finished [with her education] because it is taking too long. He is tired of her being gone several nights out of the week for classes and studying while he is home with the children. He says that for him, being a Mexican, the primary focus is the family and from his perspective right now the family doesn't have a mother. He does not believe in the man having to be home to care for children. He is basically telling her that it is the duty of the mother to be home, raising the family. She tells him that she is doing all she can to ensure a better life for them all. He replies, "Yes. But your education is not only costing you, it is costing me and the children."

Janie, a "moderately successful" student, shares her concerns about the gender role expectations of Latinas. During the interview with Janie, she realized that the support of her family, specifically her husband and mother, is both verbal and conditional. When asked how her husband supports her, she said, "Well he kinda waits for me to cook and if I don't clean the house, then he doesn't whine." Later in the interview she says, "… But, he's your typical machista kinda guy. So, its, it's been a challenge. But he knows that in the future, that he'll gain from it too. We'll be more stable." Janie attempts to justify the reasons her husband should support her efforts, she is not completely convinced that he is supportive. When we discussed traditional gender roles and expectations, Janie paused and said, "You know, because they expect us to be Wonder Woman or something…" Although her mother assisted by caring for her son, she wasn't completely supportive,

> ... she [my mom] says, that if it's something that I want and if everything else works then I should keep going. Cuz, you know, she's, she's for her children first. If she thinks I'm not doing anything wrong with him (points to son)…then, then, that's ok with her. (Janie, interview)

Throughout the interview, Janie's reflection of her situation was a contradiction in her ideas about support and partnership and a pull toward the traditional gender roles of Latina females. While Janie struggles silently and is accepting of the position that she is in with her husband, Sandra is more vocal about her expected responsibilities and her expectations of her husband.

Sandra shares a conversation that she has had with her husband several times since she began pursuing her degree. Sandra admits, although she understands her husband's frustration, her desire to complete the program is strong.

> … I tell him, you're so dependent, you're so dependent on me. Le dije, yo and I told him, you know, you have to try to talk to them [family] sometimes and say: I'm a mom, I work and I study. Plus we're very involved in church and it's not for us. The kids, we try to get them into something different [than gangs like their parents]. I juggle soccer practice, I juggle soccer games, on my weekends when I'm supposed to clean house, get everything ready for the week. …le dije todavia en [I told him, also at] church, both of my kids, my girls choir and my son is learning an instrument. … I teach them…. Trying to get them into something else. Le digo, [I say] so when do we manage church, school, house? Le dije [I told him] so it takes for you to help. Pues, Si, yo, yo te ayudo [Well, yes, I, I will help you]. But there's some days when I come home…like right now…I'm gonna go home and I know that he's gonna say…(Sandra, interview)

The conflict in gender role identification is that the participants see the value in attaining their degrees for themselves, their families and their hope for a better future. Unfortunately, the family, usually the spouse, doesn't always see the possibilities, only the current limitations. It is very frustrating, yet culture and expectations are so ingrained, without realizing it, they are passed on to daughters:

Melinda, a "highly successful" student, also acknowledges that the ingrained culture of the role of the female is so difficult to over come, that we do things automatically,

> I do, I do it all (laughs). And that's when you think about it… It's like what are you showing your child, my daughter. That you do laundry and grocery shopping, the bills, the banking. My husband would like to help, but I think I just automatically do it myself. … My mom does it all. (Melinda, interview)

Melinda is concerned about the expectations for her own daughter, while Raquel, another "moderately successful" student, attributes her daughter with supporting her educational goals by assuming some of the "mother" role,

> My childrens help a lot. My oldest, my middle one, because my oldest one doesn't live with me no more…And they help around the house, like when I have night classes they try to like clean the house, cook supper if I get home late, so my middle one's [16 year old female] been really supportive to help me with the younger one when she has homework, when I'm not there. … she needs me more, but she gets it a lot from her middle sister so, they're really helpful. (Raquel, interview)

Family responsibilities and the desire to create a better life, as part of gender role identification, seems to be the motivating factor in the lives of these women who desperately want to be able to support and maintain their families and show their children a different or better life, while they attempt to obtain elementary teaching degrees. However, family obligations are also their greatest challenges. In an effort to "play" their Latina gender roles and find identification for themselves they feel like they have to sacrifice a part of who they are [Latinas] to obtain their educational goals.

Although all of the participants, especially those with children, believe they have understanding [verbal support] from families in what they are trying to accomplish, they often are frustrated by the lack of physical, [visible] support. Connie shared her long struggle:

> I've been taking classes since my kids, my oldest kids have been really young [oldest child is 16]. My mom, my dad have always been supportive in the way that, when I've been with them [living with them] of taking care of my kids and saying whatever we, we can we will help, maybe not economically, but in other ways. So they've been there. My husband helps me, but since he's tired. Long hours from 5 in the morning to 6 -7 in the afternoon. When he can, he will even help me with stuff that I need help, but… So he's there for me, but it's hard too, because sometimes I don't have it, support. Even though he got an education himself, but he's like, I'm tired or he gets frustrated too at work and he gets home, dealing with the kids. I have to get out of the house in order to do my stuff, because if not I'm hearing it. So…its there but not 100%. (Connie, interview)

Connie is frustrated that she has tried to attend college for years and has moved several times due to job advancement opportunities for her spouse; which limit hers. She is frustrated that he does not give her the type of support that she needs to be successful or at least less stressed while working part-time and attending six to nine hours of classes per semester.

Mexican-American women are trapped between the traditional values and expectations of their heritage culture and accepting individual achievement and personal gain. In U.S. culture the individual owns the accomplishments of an individual (Stivers, 2003). In Mexican culture, the benefit to the family or group comes first, for both males and females. The strength of the behavior is influenced by the degree of acculturation of the individual (Gill and Vasquez, 1996). Cultural gender roles, family responsibilities, support or conflict within the family and, ultimately, gender identity, influenced all the students in the course. These factors, particularly conflict or support, influenced the success of each student while hopes and aspirations for the family provided additional motivation to succeed.

Summary

Four of the five sociocultural factors explored in this study, generational status, educational attainment, socioeconomic status, and gender roles appeared to influence the success of Hispanic, non-traditional pre-service teachers enrolled in the required online instructional media and technology course. Only one of the factors, English language ability, did not appear to have any direct influence on the success of these particular students. Although many of the students struggled with conventional use of English and this undoubtedly influenced their success in other courses, it did not inhibit their success in the on-line media and technology course. Participants were most expressive in their personal interviews about the influence of gender roles, both as a motivator and an inhibitor of success.

These sociocultural factors also influence one another, particularly as generational status influences, English language ability, educational attainment, gender roles, and ultimately socioeconomic status. Socioeconomic status, in turn, highly influences computer ownership and Internet access which leads to reduced familiarity with computer and technology terminology, prior experience with computers, and the participant's perceived self-efficacy in using computer technology for teaching. These factors all then influence the digital divide and the gaps that exist between Hispanics and other racial / ethnic groups. In chapter five, conclusions and implications will be discussed and suggestions for future research will be provided.

Chapter 5 - Conclusions, Discussion and Implications

This study sought to identify the sociocultural factors that influenced the success of non-traditional, Latina pre-service teachers from Southwestern Kansas in a required online instructional media and technology course. The problem identified for this study is the growing gap in the digital divide among ethnic/racial groups. The digital divide is the disparity between those who have computer technology and literacy and can use it to social, economic and educational gains and those who cannot.

Technology advances quickly; the first home computers in the late 1980's had only1MB (megabite) of RAM (Random Access Memory) and could not process or store much information. Recently, handheld cellular devices, often called smart phones, have been reported to have up to 8 GB of RAM(Sprint, 2012). However, the development and availability of technology does not guarantee access. For Hispanic people, ownership of computer equipment and Internet access is the catalyst to entry into the Information Age, an age where information is estimated by Google to be uploaded to online sites at a rate of 8 million items per second world-wide (Faber, 2007). Without computer literacy, knowledge and skills it is difficult to take advantage of opportunities in education, economics and investment in their future (Cooper, 2000; Edwards, 2005; Edutopia, 2006; Wilhelm, 2004). The factors influencing this growing digital divide must be understood to help create a brighter future for all people.

The one place that children of all racial/ethnic groups have found common ground for the development of computer skills and literacy has been in schools. However, as the research has shown, teachers are not yet fully prepared to teach with computer and Internet technologies (Ajwa, 2007; Goos & Bennison, 2008; Lei, 2009; Pringle, Rose, Dawson, & Adams, 2003; Prensky, 2001; Pope, et al., 2002; Schwab, 2001). If all pre-service teachers, particularly diverse candidates themselves, can be more effectively prepared to use technology to enhance teaching and learning, we may begin to close the digital divide.

Because the participants in this study were non-traditional, Latina, pre-service teachers, the findings are beneficial for increasing our understanding of the factors influencing the digital divide as well as providing guidance for preparing future non-traditional, Latina teachers to effectively use technology in the classroom.

Conclusions

Using a Chicana epistemology as identified by Delgado-Bernal (1998), within a naturalistic qualitative case study, allowed for the perspective of the participants as students and the researcher as a Latina to explore and identify shared cultural patterns, expectations and beliefs, while identifying the sociocultural factors that continue to influence the digital divide for Hispanics. As a reminder to the reader, the sociocultural factors were operationally defined in this study as: 1) *generational status* which refers to the number of years or generations each participant's family lived in the United States; 2) *English language ability* as determined by the researcher, a former English teacher, based on each participant's use of conventions in written and spoken classroom work, e-mail communications, and interviews as well as the language assistance they needed to speak and comprehend course readings and lectures; 3) *educational attainment* was determined by the level of each participant's post-secondary education; 4) *socioeconomic status* which was determined by the income and occupation of each participant and her immediate family members and her computer ownership and Internet access, and 5) *gender identity* which was determined based on gender roles within each participant's family as well as family responsibilities, support systems and conflicts.

The analysis of course artifacts, as presented in chapter four, indicates that all eight of the non-traditional, Latina preservice teachers successfully completed the required online instructional media and technology course. Four of the pre-service teachers were designated as *moderately successful* while the remaining four were designated as *highly successful* through the data analysis process.

The analysis of observational data, interviews, and program documents indicated that four of the five sociocultural factors explored in this study, generational status, educational attainment, socioeconomic status, and gender roles directly influenced the success of the nontraditional, Latina, pre-service teachers enrolled in the required online instructional media and technology course. Only one of the factors, English language ability, did not appear to have a direct influence on the success of these particular students. Based on the data, gender role identification, more than any other sociocultural factor, had the greatest influence on the success of these particular students in this specific on-line course.

All five sociocultural factors, 1) generational status, 2) English language ability, 3) educational attainment, 4) socioeconomic status, and 5) gender roles also influenced one another.

Generational status influenced educational attainment, English language ability, gender roles, and ultimately socioeconomic status. Socioeconomic status, in turn, highly influenced computer ownership and Internet access which influenced familiarity with computer and technology terminology, prior experience with computers, and the participant's perceived self-efficacy in using computer technology for teaching. So ultimately, all five sociocultural factors either directly or indirectly influenced the success of the participants in a complex interconnected fashion.

Discussion

As a participant researcher, I was given access into the private lives of the students via personal interviews, conversations, and interactions. Although the data indicates that all students were at least *moderately successful* in the online instructional media and technology course, this designation does not tell the entire story. All eight students passed the course with an overall grade of C or higher and earned credit toward their degree; but, the pre-service teachers' grades reflect their performance on course assessments and are not necessarily representative of their academic capacity in terms of technology literacy.

The designation of *moderately successful* for one of the four preservice teachers placed in this category, Raquel, was an accurate reflection of her capabilities due to her more limited academic preparation and educational attainment. Raquel struggled with the online instructional media and technology course and ultimately earned 74 out of 100 possible points and a grade of C. She also struggled with school in general and the demands of a family and a medical condition. Raquel reported she dropped out of high school, waited over ten years to attempt and complete a GED program, and had taken college courses over a twelve year period at Dodge City Community College with no guidance toward completion of a degree program. During the course of the pre-service elementary program, Raquel unsuccessfully attempted to complete the academic courses that were required. She eventually dropped out of the program prior to graduation, partially due to the number of courses that she still needed to complete. In addition to the academic demands of the program, she also is married with three children, two of whom are still dependent minors, and has battled a serious medical condition for four years.

The technological capabilities of the other three students placed in the *moderately successful* category, Sandra, Helen and Janie, were not well represented by their performance on course assessments. In attempt to answer the research question, *In what ways do sociocultural*

factors influence the success of non-traditional, Latina pre-service teachers in a required online media and technology course?, it was necessary to investigate the sociocultural factors for each of the three students who were academically capable, but did not receive a designation of *highly successful* within the parameters of this study.

In the case of Sandra, Helen and Janie, sociocultural factors strongly influenced their designation as only *moderately successful*. All three of these women had the potential for greater academic success, had the negative influences of sociocultural factors been minimized or eliminated. Academic preparation was not an issue for these women. A review of college transcripts revealed that Sandra, Helen and Janie were academically successful in the completion of the freshman level algebra, English composition courses, and other coursework required for admission into the College of Education. Sandra and Helen had final grades of 77 and 75 respectively; both were awarded a grade of C in the online instructional media and technology course. However, of the eight students in the study, Sandra and Helen were the only two to have received denotations of "N/A" or "no score" on one or more assignments, which did not numerically affect their overall grade. Had they been given zeros for these missing assignments, they would have been designated as *unsuccessful*. Janie, on the other hand earned each of the 82 points awarded, giving her a grade of B; she was only 8 points from earning an A.

Kominski (1992) concluded in his study of census data, that a strong relationship exists between education and computer ownership, while education, occupation and geographic location act as barriers to Internet access. As occupation is directly related to earning potential, Sandra and Janie were strongly influenced by socio-economic issues as the only two participants in the study who did not own a home computer and had limited access to locations that provided access. Sandra often relied on her elementary school to allow her access to a computer, during the times when the students were in recess, before school or after school to attempt to complete her assignments and submit them online. This worked out for a few weeks, until one of the cooperating teachers complained to the principal that school computers were not for personal use. Sandra then tried to purchase a computer from a pawn shop. However; the computer was old, somewhat limited and she could not afford Internet access.

In a 2002 study, conducted by Stanley in low income neighborhoods, computer learning and literacy centers were established to aid people in the development of computer skills. For Sandra and Janie, the Learning Resource Center (LRC) on campus at Dodge City Community

College became one of the sources of access for use. The LRC was a good resource, but it had limited hours and only a few computers available. Getting to the LRC before evening classes was often not possible and following evening classes the LRC was closed. Sandra had both work and family obligations that limited her available time to work on course assignments, for this reason, she was missed exam #3.

Janie's success was strongly influenced by her socioeconomic status. She did not work, but stayed home with a child under school age. Because the family had only one working vehicle, she often relied on relatives to help by babysitting and/or transporting her to the LRC in order to complete assignments. Family was not always available or willing to help Janie get to the LRC. Through observation and interview, it was clear that Janie was not comfortable or familiar with computer information systems. Her lack of experience in using computers coupled with her need and limited resources frustrated Janie further. Janie attempted to purchase a device that hooked up to the television screen. She thought it was the same thing as a computer and would allow her to access the Internet through the cable television; however, in the end it was, "a waste of money," (interview, Janie) .

Although socio-economic status strongly influenced the success of the pre-service teachers, gender identity was the most influential sociocultural factor in this study. This is a critical finding since all other sociocultural factors can be traced to tangible events or situations that can be changed over time; whereas gender identity is based on behavioral and emotional cultural expectations or feelings. In this study it is defined as the gender roles within each participant's family as well as family responsibilities, support systems and conflicts.

At the time of this study, Sandra was a 27 year-old, U.S. resident, wife, mother of three children under the age of 12, a full-time employed para-professional in an elementary school, a music minister in her church, a full-time student, a part time care giver to her mother and grandmother, and a full time student. Sandra struggled with meeting the financial, emotional and physical needs of her family while attending night courses several times per week. Not to mention, Sandra was diagnosed several years ago with an autoimmune disease that caused a miscarriage and required extended hospital stays two times in during the course of this study.

For Janie, the pressure to be a full-time mother and wife came from both her own mother and her spouse. Janie is 26 years old and the mother to a four-year old son. She was a para-professional with the public school district for four years, but left her job due to childcare for her

son. When talking about family expectations, Janie indicated that her mother was supportive, but only conditionally, "Well she says, that if it's [teaching] something that I want and if everything else works then I should keep going. If she thinks I'm not doing anything wrong with him [points to son]…then, then, that's o.k with her" (Janie, interview).

Each of the students in the course who had children, were concerned about the amount of time that they were away from home, much like Janie, "… the part that I feel guilty about is him [points to son]. … if I'm like stressed or I have to finish homework or if I haven't had dinner ready… you know?" (Interview, Janie).

Helen was one of three students who was not married and did not have children. Helen was 23 years-old and had recently completed an associate of art at a different community college. Additionally, she completed a certification for computer skills training. She actually had a more traditional college experience, having lived away from home in a college dorm; this was unique to the participants in the study. Although Helen appears to have had the fewest gender identity role issues, she allowed cultural expectations to influence her success the most.

Helen felt an extreme pull to be married and was feeling frustrated that her friends were married and having children and she was not, "…a lot of girls are, have kids. I feel like I'm the only one and I'm behind. My little sister she's barely turning 19, she's gonna be 19, May… she already has her son and she's already married. So, sometimes, I always felt like…" Although her parents wanted her to be successful and go to college, she often felt the need to meet family cultural expectations, she stated, "They [my parents] want me to go to school, but my mom, since I'm the oldest, they're like, when are we gonna have grandchildren? Blah, blah, blah…" This pull was so strong for Helen that she failed to turn in two assignments: skills test #3, and the final project. It was at these points in the semester that Helen was undecided about her on again, off again, relationship with a man she had known for several years, and continuing her education. Sandra, Janie and Helen are perhaps the best examples in this study of the culturally relevent and gender specific roles known as *Marianismo* and *Machismo* (Ginorio and Houston, 2001). These gender expectations are implicit in every aspect within the Hispanic culture. According to Ginorio and Huston (2001), "Many families emphasize or highly esteem traditional roles for women as wives and mothers," (p. 24). As a result, "Hispanic gender roles for women are extremely restrictive; many traditional adults question the value of any education for women" (p. 24). For Sandra, Janie and Helen restrictive gender roles strongly influenced their designation as

only moderately success in the completion of the online instructional media and technology course. All three students had the potential for greater academic success. The instructor provided an opportunity for Sandra and Helen to successfully complet the course by providing an "n/a" rather then a zero for missing assignments. Had a numeric value been assigned the students would have failed the course.

Implications

As of the latest census (U.S Census Bureau, 2011), the number of Hispanic/Latino/as in the United States has reached 50 million or just over 16% of the population. Hispanics are the fastest growing minority group in the United States. This population is concentrated at two distinct demographics, the very young, (ages 4 -12 early pre-school and elementary school age) and the working and childbearing age, (18-59) (Ramirez & De La Cruz, 2002, p. 10). The pre-service teachers in this study are a part of this Hispanic/Latino childbearing population. A deeper understanding of the socioeconomic factors that influence the success of diverse pre-service teachers is critical to recruitment and retention and is an important element in meeting the needs of students within this demographic. In addition, teachers from elementary through high school have become increasingly responsible for helping meet the demands of our technological society, by improving digital literacy practices and the preparation of students for a job market that does not yet exist. Understanding the socioeconomic factors that continue to influence the digital divide is critical for advancing our society.

Current trends in the U.S. job market will be positive for college graduates with technological literacy. Career builder.com reported that companies plan to begin hiring for social media specialists. As social media rapidly gains popularity among consumers and businesses, employers are taking notice and plan to add jobs and responsibilities related to Web 2.0. And finally, companies are adding bilingual staff. This trend is in an effort to appeal to broader consumer segments in the United States who may not speak English or speak it as thier non-native language. Employers are looking to diversify their personnel. One-third of the employers said they plan to hire bilingual candidates in the second quarter of 2010 (careerbuilder, 2010). These diverse candidates must not be marginalized by their lack of technological fluency while opportunities are ripe.

The development of classroom instruction that includes the use of technology for teaching and learning is becoming more important as the digital age progresses. With the continued invention of faster, easier, more accessible digital devices, teachers will need to be

prepared to use them rather than ban them in the classroom. The issue of fluency in technology means being able to search the web, but also having enough knowledge and experience using a computer to actually create a website, or other digital media content for use and application (Resnick, 2001). As teachers learn to use and develop lessons including digital media, so will students learn to think, develop and use computer technology tools for more than just "poking around the Internet". All students need technologically literate teachers. Once again, understanding the socioeconomic factors that influence the digital gap is critical and they must be addressed in order to prepare all teachers and all students for the 21st century.

Future Research

This study investigated the ways in which culture is related to the continuing gap in the digital divide for Hispanic/Latino groups in the United States. Although this study was small and regional, it produced several findings that should be further explored. The researcher originally believed that English language ability was going to be the sociocultural factor of greatest significance in the pre-service students' success in the online instructional media and technology course. In her experience as an English teacher with a high population of first and second generation of non-native English speakers in a urban/suburban school district, English language proficiency correlated with student success in the classroom and the work place. Because the majority of the students in the online instructional media and technology course were predominately non-native speakers of English, the researcher expected students to struggle with the academic content of the course given that English has been designated as the predominate language of technology world wide (Childers, 2003; Fox, 2007; Kupperman & Fishman, 2002; Resnick, 2001; Stanley, 2002). However, the influence of language was only indirectly related to these particular non-traditional, Latina students' success in this specific on-line course. This finding warrents further research.

Although many of the students struggled with conventional use of English and this undoubtedly influenced their success in other courses, it did not inhibit their success in the on-line media and technology course, as the results of the course artifacts assessment show. Many of the technology terms in Spanish are English cognates (a word in a language that has the same origin as a word in a different language). In English, the Internet or World-Wide Web is often

referred to as the “Web”. Since there is no Spanish word for World-Wide Web, the word is “La Red” – literally meaning, “the spider web”, computer is computadora, and technology is technología. These similarities in technology terms may have eased the struggle of translating content knowledge from Spanish to English for understanding in the course. Additionally, a strong network was created between students. Observations indicated a good deal of translating and explaining occured among the students during class. Another possibility, worthy of future research, is that an on-line environment provides additional time and opportunity to traverse language obstacles for English language learners. Using technology tools, translations software could help clarify meaning, while simple programs like word may aid in spelling and grammar development, if students are constantly engaged in the use of technology for learning.

Another area in need of further research is the influence of faculty and support personell to assist students in identifying and negotiating sociocultural factors within post seconday education. The cohort group of students in the instructional technology and media course repeatedly reported that they would not have been successful, if not for the support of the instructor and the graduate researcher. When it came to the evaluation of student work, the instructor, for the first time in his career, took into consideration the circumstances within which the students lived. Although the purpose of this study was not to explore the need for emotional and academic support for marginalized groups of students, the attitudes and teaching behaviors of the faculty and staff did impact student success. This demonstrates a need for further research and training in cultural diversity issues related to faculty perspectives and dispositions when working with culturally and linguistically diverse students.

A final suggestion for future research is the topic of resiliency. Although this study did not examine the factors that helped students overcome the negative influence of sociocultural factors, the importance of resiliency surfaced in the lives of these non-traditional, Latina, pre-service students. As perviously mentioned, four of the five sociocultural factors examined in this study, generational status, educational attainment, socioeconomic status, and gender roles directly influenced the success of the non-traditional, Latina, pre-service teachers enrolled in the required online instructional media and technology course. Only one of the five factors studied, English language ability, did not have a direct influence. Unfortunately, the influences of these sociocultural factors were often negative. And yet, all eight students successfully completed the course. Four of the eight students successfully completed the teacher education program. Two

chose to change career fields, but remained committed to post-secondary education, while two students withdrew from the program entirely due to the negative influence of the sociocultural factors on their goals. The lives of these women, as reported through their interviews, demonstrated tremendous resiliency in the face of obstacles. The importance of resiliency to overcome the negative impact of some sociocultural factors is a powerful area for further research.

Summary

The focus of this study was to understand and describe the sociocultural factors that influenced the success of non-traditional, Latina pre-service teachers in a required online instructional media and technology course through the use of qualitative, naturalistic research methods. The findings showed what research had found previously, socioeconomic status does play a significant role in the acquisition and access of home computer technology for Hispanics. However, as the United States strives to have the most highly educated work force in the world (Excelencia in Education, 2010), a focus on the recruitment and retention of Hispanics at four year institutions and in teacher education programs will need to increase significantly to meet the needs of a growing culturally and linguistically diverse population. Closing the achievement gap is more than increasing test scores for minority students; it means understanding racial, cultural and class values that impact a student's experience and success.

The digital divide remains an issue for populations who cannot afford computer technologies. The invention of smart phones has increased overall use of the Internet, but has not shown large increase in home computer ownership and Interent access among Hispanic populations (Pew, 2011). Hispanics are as likely as all other racial/ethnic groups to use Internet access from a cell phone, but much less likely to access the Internet from home particularly if they live in rural areas according to the most recent Pew study. For Hispanics living in rural locations, Internet access and computer ownership may continue to be an issue of availability, not just affordability, an area of research worth exploring.

Teacher education programs are the most likely place for developing technology tools for teaching and learning. Teachers must be fluent in computer competencies of operating systems, applications, programming, telecommunications, multimedia and all other aspects of technology that are continually developing and changing. Pre-service teachers and teacher education

programs are challenged with the responsibility for educating technologically competent teachers for the 21st century who can meet the needs of our growing diverse population and help to close the digital divide.

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Appendix A - DED 318 Course Documents

DED 318
Kansas State University
Spring, 2007

On-Line: K-State On Line
Interactive Video Conferencing

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Instructional Media & Technology
Course Synopsis

This undergraduate course deals with developing skills necessary to integrate modern digital teaching technologies into the skill base of practicing graduates who are seeking initial certification as an Elementary or Secondary Teacher. Two particular thrusts dominate in this course: 1) developing a set of skills using digital and media technology and 2) integrating technology skills into the teaching of content. As a broad overview, this course seeks to ensure that students will initially master those skills necessary to be

successful in their professional coursework within the College of Education and subsequently build on these skills to integrate them into their teaching practice beyond graduation.

Required Text

Lever-Duffy, J., McDonald, J. B. & Mitzel, A. P. (2005). Pearson Education. New York.

College of Education Mission

The College of Education is dedicated to its vision of preparing educators be knowledgeable, ethical, caring decision makers through excellence in the:
Delivery of exemplary instruction to students at the undergraduate and graduate levels; Production, interpretation, and dissemination of sound and useful research and scholarships; and Provision of leadership, collaboration, and service within the profession.

Conceptual Framework

The Conceptual Framework (CF) serves as a guide for fulfilling the College of Education's vision of preparing educators to be knowledgeable, ethical, caring decision makers, and supports the university and college missions focusing on the development of a skilled workforce through teaching, research and service. The CF acknowledges the contribution of general education, content area studies, and professional studies to the preparation of educators, and organizes professional studies into four broad categories:
(1) Perspectives and Preparation;
(2) Learning Environment;
(3) Instruction;
(4) Professionalism.

Goals

The College of Education has organized its conceptual framework into four broad categories: Perspectives and Preparation; Learning Environments; Instruction; and Professionalism, all designed to prepare students to meet the Technology Exit Outcomes for KSU-COE of Teachers in their professional classes. Additionally, the ISTE consortium defined National Education Technology Standards that all classroom teachers should meet: The College of Educations four categories are associated with the ISTE Standards and are shown below in boldface.

These six standards are:

1. Technology Operations and Concepts: Teachers demonstrate a sound understanding of technology operations and concepts. INSTRUCTION

2. Planning and designing learning environments and experiences: Teachers plan and design effective learning environments and experiences supported by technology. PERSPECTIVES AND PREPARTION

3. Teaching, learning and the curriculum: Teachers implement curriculum plans that include methods and strategies for applying technology to maximize student learning. INSTRUCTION/LEARNING ENVIRONMENT

4. Assessment and Evaluation: Teachers apply technology to facilitate a variety of effective assessment and evaluation strategies. PERSPECTIVES AND PREPARATION/LEARNING ENVIRONMENT/INSTRUCTION

5. Productivity and professional practices: Teachers use technology to enhance their productivity and professional practice. PROFESSIONALISM

6. Social, ethical, legal and human issues: Teachers understand the social, ethical, legal and human issues surrounding the use of technology in PK-12 schools and apply that understanding in practice. PROFESSIONALISM/PERSPECTIVES AND PREPARATION

The goals of this course are designed to parallel the standards developed by the International Society for Technology Education (ISTE) consortium.

Introduction

The Technology Exit Outcomes for KSU-COE pre-service teachers are designed to meet the ISTE standards for teachers. Perhaps no change has been more fundamental than the change from viewing digital technology as an esoteric topic of study, to understanding that technology integration is a fundamental skill required of all teachers. Teachers require these skills in order to ensure students master the content required by their field of study, practice higher order thinking skills and posses information literacy.

This course focuses on Kansas Professional Education Standard #12: The educator understands the role of technology in society and demonstrates skills using instructional tools and technology to gather, analyze and present information, enhance instructional practices, facilitate professional productivity and communication and help all students use technology effectively.

The professional literature of technology education has made substantial changes in the past decade. Digital technologies and their application to the teaching of content have made great strides and undergone sweeping changes. To define this rapidly evolving field, ISTE at the behest of NCATE formed a coalition to define the "candidate knowledge, skills and dispositions," relative to technology. This project coalition included:

American Association of School Librarians
American Federation of Teachers
Association for Supervision and Curriculum Development
The Council for Exceptional Children
Council of Chief State School Officers

National Association of Elementary Principals
National Association of Secondary Principals
National Education Association
National Foundation for the Improvement of Education
National School Board Association
Software Information Industry Association

Audience

The primary audience for this course is pre-service teachers in their first semester of professional coursework in the College of Education-Kansas State University.

Prerequisites

It is assumed that students enrolling in DED 318 will understand basic computer operations as outlined by admission requirements to Regent's Universities; "...computer literacy including a basic understanding of computer operations, applications and programming." (KSA 76-717 Implementation of Qualified Admissions, Article B).

Students who do not have the basic computer literacy skills, as outlined above, are encouraged to enroll in CS 101, 102, 103 or other remedial programs prior to enrolling in DED 318. It is assumed that students will have access to Internet enabled computers with Microsoft Office.

Assignments

General

1. Regular and prompt completion of all assignments.
2. Regular attendance at interactive video conference session.
3. Active participation in online work with a heavy responsibility for individual effort and time management.

4. Completion of required readings, and observation of online demonstrations, power points.
5. Successful completions of all exams, projects and demonstrations.
6. Regular use of MS Office applications and common Internet browsers is expected. Students choosing to use other application software will be expected to submit assignments in formats readable by MS Office software.
7. Regular checking of email and on-line announcements is expected.

Assignment Policy

• Students will submit all assignments electronically via the course site.
• Depending on specific directions relative to the assignment, many will be submitted to the instructor via K-State On-line drop box. E-mails sent to an instructor must include "DED 318." If the assignment involved is an attachment is must include the student's last name, name of the assignment, and "dot-three" extension. Work failing to comply with these requirements will not be graded.
• All assign due dates refer to midnight CST on the listed due date. Late assignments will not be accepted.
• Your instructor will review assignments within 72 hours of the date you submit the assignment. You must refer to the K-State Online grade book in the course site to determine the grade you earned on each assignment. DO NOT try to determine your grade by sending e-mail or calling your instructor.
• If you need to discuss your grade or feedback you received from your instructor on an assignment, please a time and date. This may be done in a visit during published office hours, via e-mail or phone contact.
• Students are responsible for keeping a copy of all submitted assignments. Absent a copy of a work in question, no grade change or credit for a missing assignment is possible.
• Students must ensure that all assignment files are free of viruses before submitting them. Keep your virus detection software up-to-date. Should an

assignment fail scrutiny by K-State's standard virus detection software the student submitting it will be advised via e-mail to their K-State account. A virus-free version of the file must be resubmitted within the posted date of the assignment due date. Any subsequent failure to adhere to this requirement will cause an assignment to be unacceptable. Antivirus protection software for all K-State students is available free at http://antivirus.ksu.edu/

• If an assignment is not accepted because of virus protection failure or sent to the instructional advisor within the assignment due date a "0" grade will be recorded for that assignment.

Grades

Activity Assignments --30% of the grade

• Lesson 1—Theoretical Foundations-Email Assignment (3 points)
• Lesson 2—Personal Computers in Learning Environment-Skill Builder Assignment (3 points)
• Lesson 3—Digital Technologies in the Classroom-Skill Builder Assignment (3 points)
• Lesson 4—Administrative Software-Skill Building Assignment (3 points)
• Lesson 5—Academic Software–Skill Builder Assignment (3 points)
• Lesson 6—Networks and the Interne (3 points)
• Lesson 7—Using the web for teaching and learning—Marco Polo Assignment (3 points)
• Lesson 8—Video Technologies (3 points)
• Lesson 9—Distance Education (3 points)
• Lesson 10—Issues in Implementing Technologies in Schools (3 points)

Project --15% of the grade

Project #1 (15 points)

Exams --30% of the grade

Exam #1, 12 question multiple choice + 3 pt skills test (15 points)
Exam #2, 12 question multiple choice + 3 pt skills test (15 points)

Final Exam --25% of the grade
22 question multiple choice +3 pt skills test (25 points)

Grading Scale
90-100 points = A
80-89 points = B
70-79 points = C
60-69 points = D
Less than 60 = F

Unless there are truly EXCEPTIONAL, IMPOSSIBLE TO FORESEE, AND UNIQUE circumstances an Incomplete is NOT an option in this course.

All assignments and exams must be completed by 12:00 noon on Wednesday of Final Week. For the Spring, 2007 semester this is May 9, 2007.

Copyright

Academic Honesty

"Plagiarism and cheating are serious offenses and may be punished by failure on the

exam, paper or project, failure in the course and/or expulsion from the university."

For more information students are encouraged to review the Kansas State University honor code policies at http://www.ksu.edu/honor/ or the Student Rights and Responsibilities Section of the Campus Phone Book.

"On all assignments, examinations, or other course work undertaken by students in this class, the following pledge is implied, whether or not it is stated: 'On my honor, as a student, I have neither given nor received unauthorized aid on this academic work.'"

Disability

If you have any condition, such as a physical or learning disability, which will make it difficult for you to carry out the work I have outlined or which will require academic accommodation, please notify me immediately.

Appendix B - Course Artifacts

Lesson 1 – Chapter 1 – Objectives

At the end of this lesson you should be able to:
• Explain key learning theories
• Explain how learner characteristics affect learning.
• Explain different teaching styles and how they impact learning.
• Explain teaching learning and technology work together.
• Synthesize a vision of how the relationship of technology, teaching and learning and these will be employed in your classroom.

Lesson 1 - Chapter 1 – Instructions.

1. Read Chapter 1 – Theoretical Foundations, p. 2-30, in Lever-Duffy
2. Use the Power Point slides that accompany this chapter to review your reading and develop a deeper understanding of learning theories and how educational technology fits with these theories to enhance student learning.
3. Review International Society for Technology Education (ISTE) National Educational Technology Standards for Teachers (NETS*T) that are included in this chapter. Make sure you understand the six standards.

Lesson 1- Chapter 1 – Written Assignment (3 pts.)

• Send a 75-word email to your assigned technology proctor that explains your vision of how technology will enhance the teaching and learning of your classroom when you complete your K-State studies.

• Make sure your email references the ISTE NETS*T standards and demonstrates your understanding of these standards as they will impact your professional

Appendix C - Technology Needs

The following are minimum technical requirements to take CD-ROM and Internet-based courses from the Virtual College.

- 500MHz Pentium Processor, G4 or higher
- 128 MB of RAM
- 150 MB of free hard drive space
- Sound card and speakers
- 4X CD-ROM drive
- 33.6 K modem (or faster)
- 800x600 Resolution (link will open in a new window)
- Internet access and an e-mail account
- Web browser and certain plug-ins (depending on the course)
- Operating System: Microsoft Windows 986E (or higher) or Mac OS X (or higher)

Note: Courseware cannot be accessed using Web TV

Appendix D - Interview Questions

Research question: In what ways do social-cultural factors influence the success of non-traditional Hispanic pre-service teachers in a required online instructional media course?

Interview protocol

Through structured interview investigation, this study will seek to identify the socio-cultural factors that influence non-traditional Hispanic pre-service teachers in a required online instructional media course. These factors include, but are not limited to: (1) language ability (first and/or second language), (2) computer terminology, (3) number of years living in the U.S., (4) levels of education, (5) prior experience using computers, (6) perceived efficacy in use of computers, (7) age of the participants, (8) current occupational demands, (9) family status and (10) perceptions about the use and benefits of computer technology. These factors are by no means an extensive or exhaustive list of the multiple indicators that play a role in Hispanic non-traditional pre-service teachers lives; they are however intended to provide insight into the influences of the success of participants in this study as well as add to the research on Hispanics in higher education.

Questions to be asked of Participants:

Demographic data:

1. How old are you?
2. Do you speak a language other then English? Is English your second language?
3. Have you had any formal schooling in your first language? To what level?
4. Were you born in the U.S.? If not, in what country were you born?
5. How long have you lived in the United States?
6. Did you attend U.S. schools? What is the last grade you completed?

Educational background:

7. What year did you begin taking college courses?
8. How long have you been in college?
9. What made you decide to go to college?
10. What were your original plans?
11. Have they altered? Why?

Family/occupational obligations:

12. Do you have a spouse or significant other?
13. Do you have any children?
14. What about extended family living with or near you? (ie… Grandparents, parents, brothers, sisters, nieces, nephews)
15. How supportive is your family of your educational plans?
16. Who is most supportive? How do they show their support?
17. In a regular week, about how much time do you study?
18. How much time do you spend with your family?
19. How much time do you spend working?
20. In your household who does the following: laundry, dishes, care of sick children or family members, doctor appointments, taxes, banking?

Prior computer/technology experience:

21. Do you own a home computer? If so, what type?
22. Why did you buy it?
23. If not, do you have any plans to purchase a computer? When?
24. Do you subscribe to an Internet service provider?
25. Which one? Why did you choose this service? If not, do you have any plans to purchase Internet service? When?
27. How confident are you of your computer skills and knowledge?
28. Other then this course, how often do you use a computer? What do you use it for?
29. What are your expectations in the instructional media and technology course?
30. How have courses offered by distance education made a difference to you?
31. How do you expect courses offered by distance education to make a difference to you?

Future Aspirations:

32. What are your educational goals?
33. In what ways do you envision using computers to communicate?
34. What about in your classroom for instruction?
35. In the next 3 to 5 years what do you see for yourself?
36. Is there anything you want to tell me about?