INFLUENCES OF TEXAS GEOGRAPHY TEACHERS' EDUCATIONAL BACKGROUNDS ON TEACHING PRACTICES AND BELIEFS OF MAP SKILLS

THESIS

Presented to the Graduate Council of
Texas State University-San Marcos
in Partial Fulfillment
of the Requirements

For the Degree

Master of SCIENCE

by

Cheryl A. Frazier, B.A.

San Marcos, Texas
August 2010

INFLUENCES OF TEXAS GEOGRAPHY TEACHERS' EDUCATIONAL BACKGROUNDS ON TEACHING PRACTICES AND BELIEFS OF MAP SKILLS

Committee Members Approved:

Richard G. Boehm, Chair

Denise Blanchard-Boehm

James F. Petersen

Approved:

J. Michael Willoughby
Dean of the Graduate College

In loving memory of my parents,
Bobby and Sandra Frazier

ACKNOWLEDGEMENTS

I have been fortunate to be surrounded and supported by an amazing group of people, without whom this thesis would not have been possible, and I am thankful for the opportunity to publicly express my gratitude to them. These people have helped to get me back on the right path whenever life took a turn for the scenic route.

I would like to first thank my committee: Drs. Richard G. Boehm, Denise Blanchard-Boehm, and James F. Petersen, for their guidance during the course of the program. It was in working as a graduate research assistant under the direction of Dr. Boehm in the Grosvenor Center for Geographic Education and the Texas Alliance for Geographic Education that I first discovered my profound interest in Geography Education. This interest was increased through the opportunities provided to me through my association with these organizations. One such opportunity was the chance to join the conference planning committee for the National Council for Geographic Education, where I had the opportunity to meet and work with many of the leaders in the field. I would also like to thank the staff of the Texas Alliance for Geographic Education, especially Ms. Judy Behrens, who was instrumental in introducing me to many geography teachers across the state whose stories and insight helped to shape the research problem posed in this thesis.

Finally, I would like to thank my family. My parents had faith in me when I doubted myself, and they instilled in me the confidence to follow my dreams. They saw me through every up, down, twist, and turn life has to offer, including losing both of them to cancer during my stay at Texas State. The lessons they taught me facing life's challenges with love and laughter will stay with me forever. As for my brothers and sister, they have teased, goaded, picked, and pestered me throughout my life, and without them I would be lost. Thank you all so much for encouraging me to be me.

Submitted to the Thesis Committee on June 28, 2010.

TABLE OF CONTENTS

LIST OF TABLES

Table **Page**

LIST OF FIGURES

Figure **Page**

ABSTRACT

INFLUENCES OF TEXAS GEOGRAPHY TEACHERS' EDUCATIONAL BACKGROUND ON KNOWLEDGE, TEACHING PRACTICES, AND BELIEFS OF MAP SKILLS

by

Cheryl A. Frazier, B.S.

Texas State University-San Marcos

August 2010

SUPERVISING PROFESSOR: RICHARD G. BOEHM

The purpose of this mixed-methods study was to examine the influence of preservice geography education on teachers' beliefs and teaching practices of map skills in Texas's ninth grade World Geography Course. A questionnaire with both open- and closed-ended items was used to gather information from World Geography teachers. Survey respondents were divided into two groups: geography major and non-geography major. Themes were identified from open-ended item responses, and then responses were coded into nominal categories for analysis along with the closed-item questions using descriptive statistics. Results indicate that no statistically significant difference in the teachers' beliefs and teaching practices of map skills exist based on major field of study.

CHAPTER I

INTRODUCTION

Geography's inclusion as a core subject in *Goals 2000: Educate America Act* legislation of the early 1990s led to a standards-based educational reform in Kindergarten through Grade 12 (K-12) schools. For geography, the result of this movement is reflected in the 1994 publication *Geography for Life: National Geography Standards*. These standards were seen by many as a major step toward improving the status of geography in the schools. In 2009, after 15 years, the Standards are currently being revised and updated. Existence of the Standards alone, however, does not ensure that students will receive quality geographic instruction. Teachers must be adequately prepared to teach the content and skills included in the Standards. The importance of preservice content-subject training, particularly at the secondary level, is reiterated in recent legislation aimed at increasing the minimum qualifications for classroom teachers (*No Child Left Behind Act of 2001*, 2004).

The *No Child Left Behind Act of 2001* (NCLB) mandates that classroom teachers be credentialed as "highly qualified." Under this legislation, new teachers must, in addition to holding a bachelor's degree, demonstrate a high level of competency by successfully completing an undergraduate major in each academic subject that the teacher teaches, or pass a state test of those academic subject areas. As a supplement to NCLB, the Geography Education National Implementation Project (GENIP) steering committee

released a position statement on its definition of a highly qualified geography teacher in alignment with *Geography for Life*, stating that "if students are to learn standards-based geography well in school…it will be necessary to implement the definition of a highly qualified teacher provided in [NCLB], primarily by requiring specific undergraduate coursework and ensuring specific „content pedagogy' skills" (Geography Education National Implementation Project 2006). This definition of a highly qualified K-12 geography teacher sets the standard that high school geography teachers should have completed, in addition to instructional methods courses, at least 30 credit hours of geography coursework, while middle school teachers' education should include at least 15 hours of course credits, and an elementary teacher at least 9 hours. In other words, in an ideal setting, high school geography teachers would have successfully completed the equivalent of, at minimum, a content major in geography (Geography Education National Implementation Project 2006).

The nature of preservice geography education is a frequently discussed topic among those in the field. At the forefront of these discussions is the widely-accepted notion that preservice teachers do not receive enough geography training to effectively disseminate the content, skills, and perspectives specified in *Geography for Life: National Geography Standards 1994* (Morrill, Enedy, and Pontius 1994; Hardwick 1995; Johnson 1995). Preservice education has been shown to narrow the gap between what, in theory, the National Standards propose ought to be taught, and the actual practice of content and skills that are taught in the classroom. In one study, the analysis of a random sample survey of geography teachers indicated a positive relationship between the

implementation of the National Geography Standards and teachers' reported preservice coursework in geography (Gandy and Kruger 2004).

One goal of geographic education is to impart students with a sense of the patterns and spatial arrangements of people, places, and things on Earth. The spatial analysis of phenomena is a characteristic of geography that distinguishes it from other disciplines. As such, one step toward attaining geographic literacy is learning how to read and interpret information from maps. This knowledge must go beyond the basic trivia of location names to the ability of recognizing patterns and the understanding of the significance that some phenomenon has at a specific place and of how those patterns have developed and evolved over time (Board 1984; Bausmith and Leinhardt 1998). Map skills, however, do not receive adequate attention in secondary level teaching, which has been attributed to reports that teachers lack a developed sense of map skills themselves (Bednarz, S. 2004). This may be an example of how a teacher's prior education may affect decisions made about what content and skills are to be included in classroom lessons concerning map skills and literacy.

Research Questions

The purpose of this study is to examine the influence of differences in preservice education on the beliefs and teaching practices of teachers with a geography content major compared with those of teachers who did not major in geography by examining the way a single aspect of the geography course is incorporated in the course. Map literacy was chosen as the focus of this study because it is arguably one of the most inherent learning outcomes of a geography course. Maps are a fundamental tool of geography; therefore, the ability to read and understand maps is a necessary skill that must be

attained in order for effective presentation of geographic ideas and to teach students to "think geographically."

The overarching research question of this study addresses the influence of preservice geography teacher education on the teachers beliefs about and teaching practices of map skills in the classroom. Specific questions must be answered to understand the influence of preservice education on the teachers' practices and views:

1. What knowledge of map skills do Texas ninth grade World Geography teachers possess?
2. How do these teachers incorporate map literacy in the classrooms?
    a. What map skills are taught?
    b. When are map skills taught during the year (for example, at the beginning of the school year, as needed throughout the year, etcetera)?
    c. How are map skills taught (for example, as a stand-alone lesson or as part of a larger lesson)?
3. What beliefs do ninth grade World Geography teachers in Texas hold about map skills?

To answer the above questions, this study will be divided into four sections. The first section will provide a background and context for the current study, including topics on the standards movement and implementation, map literacy and map learning, and teacher education. The second section will describe the methodology of the study in which a mixed-methods approach was used to gather data and perform the analysis. To gather information, a survey instrument was designed and sent to a random sample of

ninth grade geography teachers in Texas, selected from a statewide database of geography teachers. Next, results of the analysis performed on the information obtained during the collection process are presented. This information was analyzed using descriptive statistics. Open-ended survey responses were analyzed using qualitative analysis methods of theme identification and coding. Finally, the results are discussed and suggestions for future research are made in the concluding section.

CHAPTER II

BACKGROUND AND CONTEXT

This section provides a background of the research problem presented in the previous chapter as well as the context and theoretical perspective in which the research questions of the current study are posed. The overall goal of this comparative research study is to gain insight into how a geography teacher's educational background influences their beliefs and teaching practices of map skills. This section contains a discussion about maps and the role of map literacy in geography education; an overview of legislation addressing preservice teacher education; and Kindergarten to twelfth grade (K-12) geography teacher education, both nationally and in Texas. Finally, an outline of the standards for grades eight through twelve social studies educators in Texas is presented along with a summary of map skills present in the state's social studies curriculum framework.

Maps and Map Literacy

To impart geographic literacy to future generations, there are three components of geography education: geographic subject matter, skills, and perspectives (Geography Education Standards Project 1994). While these components are interrelated and inseparable, the primary focus of this research is on the manner that teachers employ in

teaching students to develop geographic skills. These skills, taken from the National Geography Standards, are:

1. Asking geographic questions
2. Acquiring geographic information
3. Organizing geographic information
4. Analyzing geographic information
5. Answering geographic questions (42)

The first skill, asking geographic questions, involves asking questions such as: where is it? why is it there? how has its existence changed spatially over time? and why has it changed?. These questions about where things are and how and why they got there are answered through spatial analysis of the phenomena. Maps are the primary tool used in this process because they provide a visualization of the space; therefore, to learn geographic skills, students are expected to learn how to use maps as a tool to apply in the process of geographic inquiry (Board 1984; Geography Education Standards Project 1994; Leinhardt, Stainton, and Bausmith 1998).

In *Geography for Life: National Geography Standards,* maps are defined as "a graphic representation of a portion of the earth that is usually drawn to scale on a flat surface" (Geography Education Standards Project 1994, 265). Maps are graphic representational devices that are designed in different ways to convey varying kinds of information, and serve as a medium for presenting ideas as well as a tool for analyzing problems associated with space (Arnsdorf 1985; Hayes 1993). Not all maps are tangible. Mental maps are constructed as a "a person's organized representation of some part of the spatial environment" (Downs and Stea 1977, 6). Mental maps are typically developed

from a ground-level view through experiences in the environment; however, the study of tangible maps, such as cartographic maps, also allows the development of mental maps without direct experience of the place depicted. These maps, however, typically differ from those developed as the result of direct experiences (MacEachren 1995; Acheson 2003).

Mental maps are intangible and contain unique elements specific to each task for which the mental map is used, such as driving from point A to point B. These maps are unique to and may only be used by the individual creator. Cartographic maps, conversely, are tangible flat representations of the earth (or parts of the earth) intended for use by many. Maps are designed with common elements in mind. Examples of these elements include: projection, the mathematical transformation of the three-dimensional earth to a two-dimensional surface; scale, the relationship or ratio between a linear measurement on a map and the corresponding distance on the surface of the earth; and symbolic representation of the phenomena (Geography Education Standards Project 1994; Acheson 2003). While every person develops some sort of mental map as a means of wayfinding, the use of cartographic maps is a skill that requires knowledge of basic mapping principles and their proper application (Acheson 2003).

As with all skills, there are varying levels of map ability, ranging from basic comparison of symbols (large/small, close/spaced, square/triangle, etc.) to using a map as a decision making or content-knowledge building tool (Board 1984). Presson describes map ability as the capacity to "understand and utilize the correspondences between [a] map and the space it represents" (1982, 196). This is the understanding that elements portrayed in the map represent features of the space and relate spatially to one another on

the map as they do in reality. Leinhardt, Stainton, and Bausmith contend that "Genuine understanding of maps requires that students develop an integrated system of knowledge that allows for explanation and prediction of geographic theory" (1998, 20).

As important as maps are as a tool of geographic inquiry, the ultimate goal of teaching map skills in geography education is not only to produce cartographers, but also to promote an understanding of spatial data and information presented through maps, which are a graphic tool used by geographers in the study of the distributions and their possible causal relationships (Board 1984; Arndorf 1985).

Petersen, summarizing the work of Neil Schwartz, a psychologist who studied how humans process information and data presented on maps, presents seven examples of psychological findings about maps that would be of benefit to geographers as they prepare to teach geography with maps. As an example, Lesson 2 states that "Presenting a map before discussing explanatory text is more effective in yielding high recall of locational facts than by presenting the text first" (1997, 113). Teachers could put this lesson to use when teaching by presenting students with a map of some phenomenon to study prior to lecturing about that phenomenon.

Too often, however, the extent of map use in the schools is that of simply pinpointing a particular location, one of rote learning without the greater depth of locational significance, geographic concepts, analysis, or interpretation (Salter 1990; Ormrod et al. 1988). Poor performance by students on national assessments and the limited demand for map skills in textbooks suggest that map skills are not adequately taught in secondary schools in the United States. This may be because teachers lack a developed sense of map skills themselves (Bednarz, S. 2004).

Federal Education Legislation: No Child Left Behind Act of 2001

The No Child Left Behind Act of 2001 stipulated that as of 2005-2006 every teacher achieve "highly qualified" status. To do so, the teacher must be a certified teacher, pass a subject matter test, or have advanced certification in the subject area (*No Child Left Behind Act of 2001*). While some see this legislation as a significant step toward improving the quality of education for America's youth, it has also been highly criticized. One criticism is that the legislation puts too much emphasis on content knowledge, thereby discounting the importance of pedagogical knowledge by implying it is not needed (Cochran-Smith and Lytle 2006). Another criticism of NCLB is its emphasis on scientifically-based empirical studies by requiring that all policy and related decisions be based on research. This emphasis, say the critics, is problematic in that study results are often conflicting (Wayne and Youngs 2003; Bednarz, Stoltman, and Lee 2004).

Each side of the teacher certification requirement debate has research-based support for their positions and public policy initiatives. This point was illustrated in a 2003 study on education research literature that attempted to establish if a correlation exists between teachers' characteristics and student test scores. After reviewing the results of prior studies, the researchers found that findings were contradictory in studies attempting to determine if students learn more from a teacher with a particular degree or college coursework. As an example, the authors compared similar studies examining the impact of a teacher's educational background on student achievement gains. The results were contradictory across studies based on the subject area under study. The studies on some subjects, particularly history and English, found that a teacher's content-subject

certification was not significant as a determinant factor in student achievement gains. The opposite was true in math, however, as a study showed that math students with teachers holding a certification in mathematics did achieve higher scores on standardized tests; additionally, a study of science teachers found similar results (Wayne and Youngs 2003).

While it is to be expected that separate studies may have conflicting results, there are also examples of conflicting results within the same study. Bednarz, Stoltman, and Lee described one such example in a study on the impact of teacher education in which no connection was found between teachers' college content courses and student learning gains, particularly in math. The same study, however, also found that the completion of some coursework does have a direct correlation to student gains, particularly subject-specific methods and education courses (2004). These two articles are prime examples of how each side of the teacher education debate has scientifically-backed research to support their respective causes; thereby, each illustrates the critics' complaints about NCLB's emphasis on using research-based studies for all policy and related decisions.

Kindergarten-Twelfth Grade Geography Teacher Education

Despite its efforts to increase accountability in education across the country, the federal government, nonetheless, is not responsible for the supervision of education. That responsibility traditionally falls under the realm of state and local governments, which then mandate specific certification requirements based on each state's definition of "highly qualified" (Bednarz, R. 2002). Typical traditional secondary certification programs meet these specifications by requiring preservice teachers to choose a major content area in which they will receive a Bachelors of Arts or Science degree, complete pedagogy courses, participate in some educational field experience such as observation

and/or student teaching, and successfully complete state-mandated standardized exams. (Blackwell 1995; Ingersoll 1999; Bednarz, Bockenhauer, and Walk 2005).

State-defined teacher certification standards directly influence teacher certification programs and degree requirements. In most states, universities must meet or exceed minimum standards for teacher preparation programs set by the State Board of Education. These minimum standards are used to outline the degree plans for preservice education programs. For preservice secondary teachers, these minimum standards usually require a content major or minor in order to be certified to teach in a particular field.

In some instances, the states' varying interpretation of "highly qualified" has led to NCLB compliance plans that undermine the Act's intention. Teacher shortages in many states have prompted state officials to ease requirements for teacher certifications. As a result, in many states teachers have the option of obtaining an interdisciplinary certification (Libbee 1995; Bednarz and Bednarz 1995; Bednarz, R. 2002). Such an option was discouraged in NCLB with the assertion that content knowledge in one discipline does not indicate sufficient content knowledge in a related discipline. The note uses as an example the fields of biology and physics. As both fall into the realm of science, they are related subjects; nonetheless, a teacher with a content-major in biology does not meet the qualifications to teach physics solely on the basis that his or her degree is in a science-related field (Bednarz, Stoltman, and Lee 2004).

Just such a plan is used to certify teachers of social studies in many states, including Texas. In Texas, school administrators lobbied to enact a "Social Studies Composite" certification that allows faculty members holding it to teach any of the social studies subjects (Bednarz, R. 2002; Bednarz, Stoltman, and Lee 2004). This action has

had an impact on geography teacher education in Texas, where geography is taught as part of the social studies curriculum.

There are many reasons why preservice teachers choose to seek a social studies composite certification. Perhaps the most influential aspect of this decision is the job market. As in the corporate world where diversity of skills and ability is paramount to gaining employment, teachers with broader certification areas may be more employable that those with more limited certifications. This circumstance is especially important in small towns and rural areas where it is desirable for teachers to have multiple field licenses. Teachers entering the workforce are more likely to find employment if they are certified to teach in multiple content areas within the social studies; therefore, preservice teachers are more likely to seek social studies composite certification rather than geography alone (Boehm, Brierley, and Sharma 1994; Dumas and Evans 1997; Hermann 1994; Chiodo, Martin, and Rowan 2002).

Allowing for interdisciplinary certification at the secondary level, however, is problematic as it creates a division of preservice students' time and attention between multiple disciplines and diminishes the capacity of preservice geography programs to provide adequate training for prospective teachers (Bednarz, Bockenhauer, and Walk 2005). When a content major is required for secondary certification, it is presumed that the preservice teacher has gained adequate content knowledge. In cases such as social studies certification, where content coursework is distributed among multiple content areas, such an assumption is not possible as the prospective teacher may take few, if any, courses in each content area for which certification is received. As a result, beginning teachers lack vital content and pedagogical knowledge necessary to be an effective

teacher in subjects in which they completed little or no coursework during their education and the certification process (Adler 1991; Petersen, Natoli, and Boehm 1994; Wilson, Weller, and Cole 1998).

Due to geography's position within the social studies, a new teacher's degree can be in a field related to geography such as history, political science, or economics and still allow the teacher "highly qualified" status in geography as defined by NCLB. The allotment of coursework among the qualifying disciplines is determined by individual universities and therefore is inconsistent even within states (Libbee 1995; Bednarz and Bednarz 1995; Bednarz, R. 2002). Studies have shown that since 1994 there has been a decrease in the number of secondary social studies teachers with a degree or content major in their teaching field, including geography (Bednarz, Bockenhauer, and Walk 2005). Additionally, anecdotal reports have claimed that fewer geography majors are entering the secondary teaching profession each year; therefore, although there is not yet a shortage of social studies teachers, there is a shortage of well-trained geography teachers. Many master geography teachers are reaching retirement age and are leaving the field to younger, less-experienced teachers who have had little, if any, geography training (Ingersoll 1999; Weller 2002; Bednarz, Stoltman, and Lee 2004; Bednarz, Bockenhauer, and Walk 2005).

Social Studies Educator Standards in Texas

The Texas Education Agency's Approved Standards for Educators for social studies teachers itemizes the specific content and skills Texas preservice teachers are expected to learn in order to teach geography at the high school level. The list includes the following map-specific knowledge and skills:

5.1s: Communicate geographic information and ideas in written, oral, and visual forms

5.3s: Use geographic tools such as maps, globes, graphs, charts, models, and databases to pose and answer geographic questions

5.5s: Analyze and evaluate the validity and utility of multiple sources of geographic information such as primary and secondary sources, aerial photographs, and maps

5.6s: Construct and interpret maps to answer geographic questions, infer geographic relationships, and analyze geographic change

5.8s: Design and draw appropriate maps and other graphics such as sketch maps…to present geographic features, geographic distributions, geographic relationships, and other geographic information.

A preliminary examination of course catalogs from Texas colleges supports reports that new teachers obtaining a social studies composite certification receive little training in geography. The 2009 undergraduate catalogs and degree plans of 48 colleges and universities in Texas that offer a traditional secondary certification programs reveal that 38 of these programs require six or fewer semester credit hours of geography coursework as part of the social studies composite degree and certification plan. Seven programs require no geography coursework at all, and only four require more than 12 credit hours. In addition, it was discovered that 75 percent of these institutions do not even offer a major in geography (see Figure 1). These findings substantiate the claims that many of

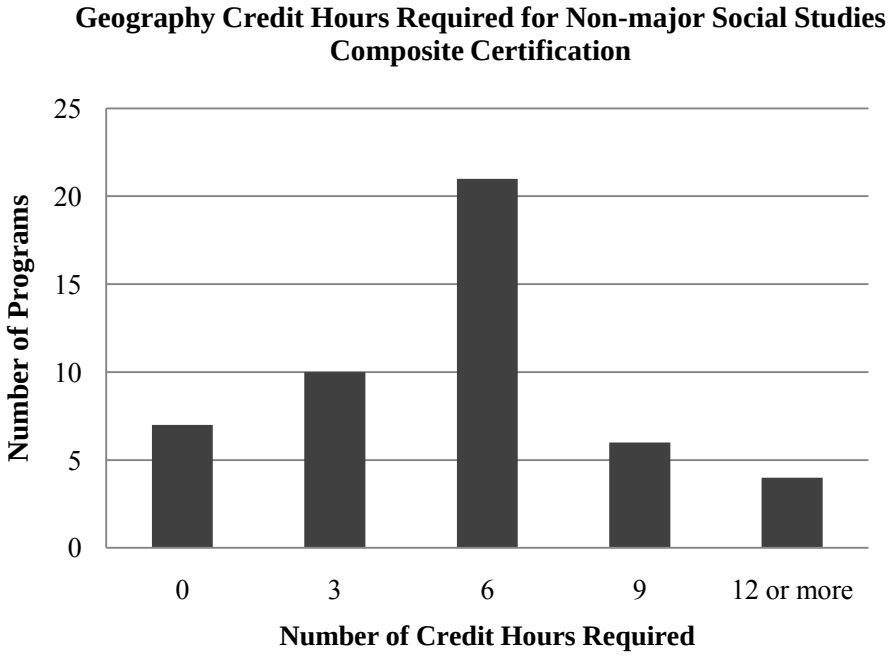

Figure 1: Geography Course Credit Hours Required for Non-geography Major Social Studies Composite Certification

the teachers entering the profession as geography teachers lack any substantial training in geography.

Four universities required more than 12 hours for a social studies composite certification, including Texas State University-San Marcos, Sam Houston State University, Texas A&M University-Kingsland, and Texas Tech University. A content analysis of the courses required for geography majors and social studies composite-track students at these universities revealed that all four universities required a geographic skills course for the major, while none had similar requirements for the non-major social studies composite.

It is evident from the variability among preservice education programs that the label “highly qualified” social studies teacher does not necessarily guarantee that a

teacher is well trained in geography. As part of the social studies composite, "prospective teachers may well not be required – or sometimes even permitted – to take any course in geography as part of their undergraduate studies" (Blackwell 1995, 497).

There is a general consensus among geographic educators that geography certification requirements need improvement; furthermore, it is recommended that university faculty in both geography departments and colleges of education work together with teachers, school district officials, social studies supervisors, and other non-geographers to create a scope and sequence for preservice education in alignment with the National Geography Standards. Such a program should provide the teachers adequate knowledge of the content and skills needed to incorporate the Standards into their teaching (Adler 1991; Boehm, Brierley, and Sharma 1994; Morrill, Enedy, and Pontius 1994; Hardwick 1994; Blackwell 1995; Zientek 2007).

Geography Standards in Texas

In the Texas Essential Knowledge and Skills (TEKS), the Texas Education Agency itemizes specific geographic knowledge and skills that it expects students to learn as part of the ninth grade World Geography course, which is a requirement for graduation. These skills include, from Subchapter 113.34. World Geography Studies:

> (21) Social Studies Skills: The student applies critical-thinking skills to organize and use information acquired from a variety of sources…The student is expected to:
>
> (B) analyze and evaluate the validity and utility of multiple sources of geographic information such as primary and secondary sources, aerial photographs, and maps

(c) construct and interpret maps to answer geographic questions, infer geographic relationships, and analyze geographic change

(e) use a series of maps, including computer-based geographic information systems, to obtain and analyze data needed to solve geographic and locational problems

22) Social Studies Skills: The student communicates in written, oral, and visual forms. The student is expected to:

(a) design and draw appropriate maps and other graphics such as sketch maps…to present geographic information including geographic features, geographic distributions, and geographic relationships

Comparing the educator standards from the previous section with the knowledge and skills standards for students, it is clear that teachers are expected to know map skills because they are expected teach them.

Theoretical Perspective

The premise that teachers draw on their own educational background and life experiences once in the classroom is common in educational research. These experiences shape not only a teacher's practices, but also his or her beliefs (Levin 2008; Salvio 2010). The intricate relationship between practices and beliefs when making decisions is known as *practical theory,* which Handal and Lauvas describe as "a person's private, integrated but ever-changing system of knowledge, experience and values which is relevant to teaching practice at any particular time" (1987, 9). Research based on the foundations of practical theory has explored how teachers make decisions about teaching based on their experiences (Salvio 2010).

The practices and beliefs of teachers not only influence their decisions about what to teach, but also the method in which to teach it. These decisions are shaped by the teachers' own experiences as students. In a study of preservice social studies teachers, Chiodo found, through interviews, that many of these participants desired to teach in the style of their favorite teachers, whose pedagogical techniques had helped to shape the preservice teachers' practical theories about how to teach geography (2007, 19). Practical theory is closely related to pedagogical content knowledge, which, like practical theory, is derived from practice and experience (Salvio 2010). Shulman defined pedagogical content knowledge (PCK) as that "which goes beyond knowledge of subject matter per se to the dimension of subject matter knowledge for teaching" (1986, 9). PCK exists at the intersection between content knowledge (subject matter knowledge) and pedagogical knowledge (knowledge about teaching). It is based on this knowledge that teachers make decisions about the most effective methods of instruction and activities for teaching the content of a particular subject area.

Teachers do not, however, have exclusive decision making power over what to teach and how to teach it. Local and state governments set minimum standards for what concepts and skills are required to be taught. According to Gunnar and Lauvas, however, the teacher's practical theory is the ultimate deciding factor in her educational practices (1987, 26). The teacher's practical theory may influence the degree to which the standards are implemented (Craig 2006). This influence has been shown in geography education research. One such study on the teaching of river systems found that teachers supplement and expand upon those topic in which they are well versed and find enjoyable, while minimizing those of which they know little or feel are unimportant

(Gregg 2001). In another study, Gandy and Kruger found that a relationship exists in the extent of implementation of the National Geography Standards and attendance of geography inservice training (2004).

In the application of practical theory to the current study of teacher's teaching practices and beliefs about map skills, the variables are defined by the research questions addressing teachers' knowledge of map skills, teachers' classroom practices of teaching map skills, and teachers' beliefs about map skill. Therefore, the underlying logic upon which this study is based is that if teachers' practical theories are defined by their experience and education, and geography majors and non-majors have had different experiences in regard to geographic training, then the two groups should have contrasting teaching practices and beliefs due to differing practical theories.

Summary

This section provides the context in which the research questions of the current study are posed. Many factors and people are involved in making decision about the requirements of preservice education programs, including legislation, decisions of state Boards of Education, and individual universities and departments. Those decisions ultimately affect what is taught in the classroom and the educational outcomes of students. While content-specific National Geography Standards exist to guide educators in building geography curriculum, there has not been universal implementation across the nation. This may be due to the preservice training teachers receive, which impacts what teachers teach in the classroom. As maps are the primary tool of geographic analysis, teaching map skills is an important part of geography education. The intent of this study is to gain insight into how a geography teacher's educational background influences his

or her beliefs about map literacy, and in turn their practices of teaching map skills to students.

CHAPTER III

METHODOLOGY

The purpose of this comparative study was to investigate the impact of teachers' educational background on their knowledge, teaching practices, and beliefs about map skills by examining if a difference exists in when, how, and what map skills are taught by teachers who did not major in geography compared to teachers with a geography content major. This comparison was made by exploring how instruction on the primary tool of geography – the map – is incorporated with other geography course content and the curricular decisions made by the teacher. This section describes the methodology for the study in which a mixed-methods approach was used to gather data and perform the analyses.

> Creswell defines mixed methods research as one in which the researcher:
>
> employs strategies of inquiry that involve collecting data either simultaneously or sequentially to best understand research problems. The data collection also involves gathering both numeric information (e.g., on instruments) as well as text information (e.g., on interviews) so that the final database represents both quantitative and qualitative information (2003, 18).

For this study, an embedded design was used in which qualitative and quantitative data collection were conducted simultaneously. While the study was primarily based on quantitative data, qualitative data played a supplemental role.

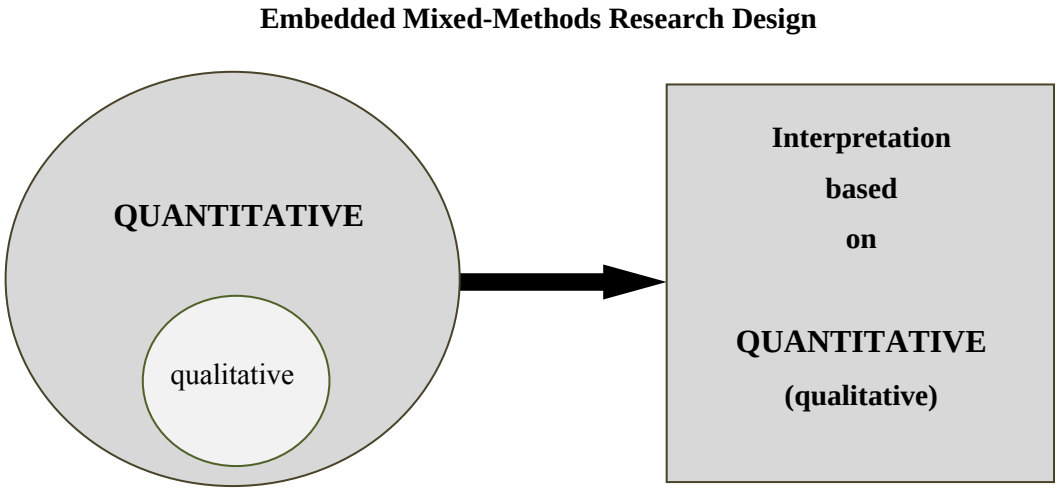

Figure 2: Embedded Mixed-Methods Research Design. Adapted from Cresswell and Plano Clark 2007, 68.

Data were collected by surveying ninth grade World Geography teachers in Texas. The questionnaire items addressed the research questions of this study. It was pilot tested by experienced teachers, and modified based on their feedback. Upon approval from Texas State University-San Marcos's Institutional Review Board (IRB), the survey was distributed via email to a random sample of ninth grade World Geography teachers in Texas. These teachers were selected from a statewide database of geography teachers compiled within the past two years by the Texas Alliance for Geographic Education using publicly available information from school districts across the state.

Designing the Survey Instrument

The purpose of this study was to evaluate the influence of educational background on teaching practices and beliefs held by teachers with a geography major compared with non-majors. This was done by comparing how teachers from the two groups incorporate

map skills into their respective courses. To gather information, an online questionnaire was developed by the researcher using the internet-based software program SurveyMonkey. This questionnaire was sent via email to a sample of ninth grade geography teachers in Texas.

Both multiple choice and open-ended questions were used on the questionnaire. Select items were mixed in that multiple-response items were provided while also allowing for an alternative answer. The instrument was pilot tested by a small convenience sample (n=5) of current and former social studies teachers to ensure the clarity of the directions and questionnaire items as well as formatting. Pilot testing also allowed the researcher to provide an estimate of the time needed to complete the questionnaire for survey participants.

Alignment of Survey Items to Research Questions

A specific use questionnaire consisting of 22 items was created for this project. The first four items were included to gather information about teachers' professional profiles. The remaining 18 items were developed to address the three research questions. Each item on the questionnaire was aligned with only one research question (Table 1).

Research Question 1

Five items were included to addresses teacher knowledge about map skills. Items 4, 5, and 6 asked about the teachers' educational backgrounds, including academic major, minor, and the quantity and topics of geography coursework completed as part of their postsecondary studies. Item 7 addressed inservice education and asked teachers to describe geography-related inservice topics presented in professional development

training sessions, while item 22 addressed informal education such as that which transpires by reading *National Geographic Magazine*.

Table I. Relationship between Research Questions and Survey Items

Background Information	1. (a) How many years have your been teaching? 1. (b) How many years have you taught social studies? 1. (c) How many years have you taught geography? 2. Did you receive your certification in Texas? 3. What subjects are you certified to teach? 8 .What course(s) do you teach?
RQ1. What knowledge do teachers have about map skills?	
1. (a) Preservice Education	4. What was your major? 5. What was your minor? 6. (a) How many courses did you complete in geography? 6. (b) Course topics?
1. (b) Inservice Education	7. (a). Have you attended geography-related professional development training? 7. (b). Topics covered in trainings?
1. (c) Informal Education	22. Do you subscribe to any geographic publications such as National Geographic?
RQ2. How do teachers incorporate map literacy in the classroom?	
2 (a). What map skills are taught?	9. What guidelines determine your geography curriculum? 10. (a) Do you teach map skills? 10. (b) If no, please explain. 11. List specific maps skills that you teach. 14. What sources do you use to develop lessons on map skills? 15. How often do you use the textbook in the planning of map skills lessons?
2 (b). When are map skills taught throughout the year (for example, at the beginning of the school year, as needed throughout the year, etcetera)?	18. Approximately what percentage of total instructional time during the school year is spent teaching map skills? 19. Which statement best describes the timing of map skills lessons in your class?
2 (c). How is map literacy taught (for example, as a stand-alone lesson or as part of a larger lesson)?	17 (a). Do you use technology-based resources (such as a GIS or Google Earth) to teach map skills? 17 (b). If no, please explain 20. Which statement best describes the situation of map skills lessons in your class?
RQ3. What beliefs do teachers in Texas hold about map literacy?	
	12. Of the [map] skills listed, which do you feel is most important for students to obtain? 13. What do you feel most influences your decisions about map skills lessons? 16. What activities do you feel are most effective in improving student understanding of maps? 21 (a). On a scale of 1-10…how important is it to include map skills lessons in geography courses? 21 (b). in history courses?

Note: Questionnaire items are shortened due to space constraints. The complete survey instrument is included in Appendix II.

Research Question 2

Nine items were designed to gather information related to the second research question addressing teacher practices of teaching map skills; that is, what, when, and how map skills are taught in their class. Items 9, 10, and 11 were designed as both closed- and open-ended questions to gain an understanding of specific maps skills topics included in lessons. Items 14 and 15 asked teachers to identify the resources they use when planning map skills lessons. Information gathered from these questions could also be used to itemize the specific skills taught. If the teacher responds that most lessons are derived from the textbook, the map skills included in that book may be identified through a content analysis.

Items 18, 19, and 20 address the extent to which map skills lessons are integrated with other course content lessons. Item 18 asked teachers to approximate the percentage of total instructional time throughout the entire school that is devoted to teaching map skills. Item 19 addressed the distribution and frequency of lessons throughout the course of the year, and item 20 addressed the degree to which map skills lessons were integrated with other course content lessons.

Research Question 3

Four questionnaire items were asked addressing the beliefs participants hold about map literacy. Item 12 asked teachers to identify the map skill(s) they feel it is most important for students to learn. Item 16 asked teachers to describe the activities they feel are most effective in improving students' understanding of maps. Item 21 asked the teachers to rate, on a scale of one to ten, the importance of including map skills lessons in

both geography and history courses. Finally, on item 13, teachers were asked to identify what they feel most influences their decisions about map skills lessons.

Sample Selection and Survey Implementation

A random sample of teachers was selected for this research project. Email addresses of ninth grade world geography teachers were collected from publicly available information found on district and school websites. It should be noted that while inclusion on this list was not voluntary, not all schools or districts provided the information to the general public, eliminating a portion of the population of ninth grade World Geography teachers from the selection process. The final list contained the contact information of 932 teachers, from which 300 teachers were selected using simple random sampling. This method of sampling is objective and it may be expected that the two groups of teachers (geography major and non-geography major) will not be systematically different from one another. The sampling method and sample size were selected based on the description of those used for similar internet surveys described by Fink (2009) and Nardi (2003).

The survey instrument was sent via email to the selected sample in April 2010. A cover letter describing the purpose of the study and the survey instrument was included in the body of the email, as well as a link to the survey. Two reminder emails were sent, the first after one week had elapsed, and the second after two weeks in an attempt to increase the response rate. As names and identifiers were not used, reminders were sent to everyone on the list. Those who had already completed the survey were acknowledged, as suggested by Nardi (2003, 112).

Of the 300 surveys distributed 76 (25 percent) were returned undeliverable due to invalid or disabled email addresses, resulting in a net sample size of 224. Five (1.5 percent) of the recipients responded that they did not now nor have they ever taught geography. Of those who attempted the survey, two withheld consent and exited the program without providing any responses. 73 questionnaires were returned, resulting in a response rate of 32.5 percent of the net sample. Fifteen of these responses were eliminated because the participant did not obtain teaching certification in Texas. This qualifier was important because the definition of a highly qualified teacher and certification requirements vary by state, and this study was geared toward teachers certified based on the requirements set for Texas alone. An additional six respondents were eliminated because they failed to answer item 5 ("what was your major"), which was used to place respondents into categories for comparison. The final net response rate was 23.2 percent.

Data Organization and Analysis

The pre-determined response categories for closed-ended items were automatically numerically coded by the software program used to implement the survey instrument. Responses for each item were tallied, and the results entered into an SPSS spreadsheet. Each respondent was assigned a tag number, which was then used to link all of his or her responses in the spreadsheet.

Open-ended item responses were categorized using the qualitative method of theme identification and the open-coding of responses based on these themes. All responses for each open-ended survey item were grouped together into a corresponding table. The responses were read as a whole for each item and themes were identified.

These themes were then used to create nominal categories, which were numerically coded in the manor of the closed-ended questions.

A matrix was created for each item, and was used to tally the number of responses for each nominal category. The tallies were recorded using the tag numbers assigned to each survey. This tag number was to allow for the identification of responses by geography majors and non-majors so that comparisons could be made between the two groups. The final tallies were then entered into the spreadsheet for quantitative analysis.

Descriptive statistics were used to analyze all responses for each item separately. Responses were then cross-tabulated by group and response category for comparative purposes. A Pearson Chi-square (χ^2) Test was used to investigate whether distributions of categorical variables differ between groups (Hinton et al. 2004, chap. 14). The chi-square statistic was calculated for each variable to test the association between the variable and the major or non-major categories at the commonly accepted significance level of a probability of less than five percent ($p<.05$).

Thirteen variables were tested to investigate the existence of differences between the two groups. By research question, these variables include:

A. Research question 1: Teacher knowledge of map skills
    1. Number of postsecondary courses completed
B. Research question 2: Teacher practices, or what, when, and how map skills are taught.
    1. Sources used to develop lessons
    2. Reliance on the use of the textbook when planning lessons
    3. Map skills taught

4. Percentage of instructional time devoted to teaching map skills
5. Timing of lessons over the course of the year
6. Integration of map skills lessons with other course content
7. Use of technology-based resources when teaching map skills

C. Research question 3: Teacher beliefs about map skills

1. Most important skill for students to learn
2. Most beneficial activities for increasing student understanding of maps
3. Importance of teaching map skills in geography classes
4. Importance of teaching map skills in history classes
5. What most influences decisions made when teaching map skills

The null hypothesis for each test variable is that there is no significant difference between the major and non-major groups.

Assumptions and Limitations

The goal of this study is to provide insight into the influence teachers' educational backgrounds has on teaching practices and beliefs. Several assumptions were made for the purpose of this research:

1. It is assumed that maps are used, and therefore taught, as part of the ninth grade World Geography course in Texas.
2. It is assumed that the study participants answered survey questions honestly and in enough detail for meaningful analysis to occur.
3. It is assumed that study participants provided answers to survey questions that accurately represent their practices and beliefs.

There study several limitations to be considered during the analysis and discussion of results.

1. This study was initial in that it is solely investigating if a difference exists between the beliefs and teaching practices of maps skills of teachers with a geography content major and those without. No attempts are made to judge the competency or efficacy of the participants as geography teachers.
2. This study was limited in its subject selection. Teachers responding to the survey self-selected themselves for participation.
3. Data collected are self-reported. This type of data collection may not accurately reflect reality.

CHAPTER IV

ANALYSIS AND RESULTS

The purpose of this comparative study was to evaluate the influence of teachers' educational background on their beliefs and teaching practices of map skills by comparing survey responses from teachers with a geography major and those without. The survey instrument was created to gain an understanding of what map skills are taught and the beliefs teachers hold about these skills, as well as their educational and professional backgrounds. Based on their response to item 4, participants were categorized as either a geography major, henceforth "major," (15.4 percent) or non-geography major, henceforth "non-major" (84.6 percent). Responses to each survey item are presented for all respondents as a whole and then were cross-tabulated by major/non-major grouping. Finally, a comparison was made between the two groups by item using the Pearson Chi-square Test.

Background Information

Background information was collected in order to gain an understanding of the teaching careers of the participants. This information was reported for the entire sample as a whole. As this survey was intended for teachers who received their certification in Texas, item 2 was used to eliminate those respondents who did not qualify

to participate. Of the 73 questionnaires returned, 15 were eliminated based on the response to this question, resulting in a sample size of 52 teachers. Item 8 asked teachers: a) how long they have been teaching, b) how long they have been teaching social studies, and c) how long they have been teaching geography specifically. Teaching experience ranged from one to thirty-eight years. The average respondent has 12.7 years of experience teaching in general, 11.2 years of experience teaching social studies, and 8.3 years of experience teaching geography. The average years of teaching experience by group are illustrated in Table 2.

Table 2: Average Years Teaching Experience

Subject	Mean	Median	Mode
Teaching			
Majors	10.5	14.5	16
Non-Majors	13	11	4
All Respondents	12.7	11	8
Social Studies			
Majors	10.7	11	16
Non-majors	11.3	8.5	4
All Respondents	11.2	8.5	8
Geography			
Majors	9.5	8	8
Non-majors	8.2	6	4
All Respondents	8.3	7	3

The next item addressed the subject areas in which the respondents are certified to teach. As it is possible in Texas to become certified in additional subject areas without taking additional coursework by passing a state-mandated standardized test, one cannot assume that a teacher is not certified in his teaching field based on his major and minor alone. Therefore, item 3 asked teachers to select from a list all subjects in which they are

certified to teach. For all respondents, 84.6 percent indicated that they are certified in social studies, while 36.5 selected history alone, 32.7 percent selected geography alone, and 42.3 percent selected some other field. The teachers who selected *other* were asked to identify the subject. Of the 22 total respondents who selected *other,* 18 (34.6 percent of total) indicated kinesiology or coaching. The results are displayed in Table 3.

Table 3: Certification by Survey Respondents

Subject	Number	Percentage of Total
Social Studies	44	84.5 %
Geography Alone	17	32.7 %
History Alone	19	36.5 %
Other	22	42.3 %

Note: Totals exceed 100% because multiple responses were allowed

Item 7 asked the respondents to list subjects they currently teach. In addition to ninth grade World Geography (100 percent), 48.1 percent are currently assigned to teach additional courses. Of those teaching additional courses, 61.5 percent listed another of the social studies disciplines (sociology, psychology, history, civics/government, economics, and Advanced Placement Human Geography), while 7.7 percent listed kinesiology or coaching. Results are illustrated in Table 4.

Table 4: Additional Subjects Taught by Survey Respondents

Subject	Number	Percentage of Total
Social Studies	**32**	**61.5%**
Sociology	5	15.6 %
Psychology	4	18.2 %
History	11	21.1 %
Civics/government	5	15.6 %
AP Human Geography	2	3.8 %
Economics	4	18.2 %
Health/Kinesiology	**4**	**18.2%**
English	**1**	**1.9 %**
Science	**1**	**1.9 %**
Drivers Education	**1**	**1.9 %**

Categorizing Participants for Comparison between Groups

As the purpose of this study is to make comparisons between two groups, the information on which the groupings are based must be obtained. On items 4 and 5 of the survey, participants indicated their major and minor fields of study. Only question 4, major, was used for classification purposes. Of the 52 teachers who participated, 15.4 percent identified themselves as geography majors. Of the non-geography majors, 28.9 percent were history majors, 17.3 percent majored in Social Studies or a related field. All other non-geography majors accounted for 38.4 percent. Responses to item 4 are displayed in Table 5 and Figure 3.

Table 5: Major Fields of Study Represented by Sample

Category	Number	Percentage of Total
Major	**8**	**15.4 %**
Non-major		
History	15	28.9 %
Social Studies or Related	9	17.3 %
All other fields	20	38.4 %
Total	**44**	**84.6 %**
Total questionnaires returned	52	

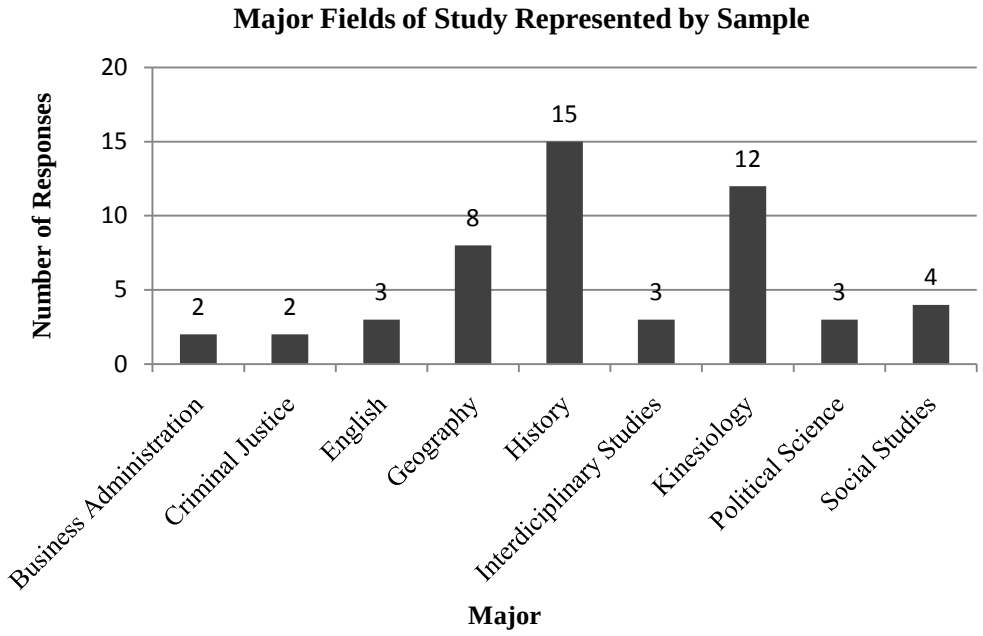

Figure 3. Major Fields of Study Represented by Sample

In response to item 5, 5.7 percent indicated they were geography minors, 28.9 percent were history minors, and 19.2 percent minored in social studies or a related field. 34.6 percent minored in a field unrelated to geography, and 7.4 percent indicated no minor. Four respondents skipped the question. It should be noted that 15.5 percent of respondent had neither a major nor minor in a social studies-related field. Responses for item 3 are displayed in Figure 4.

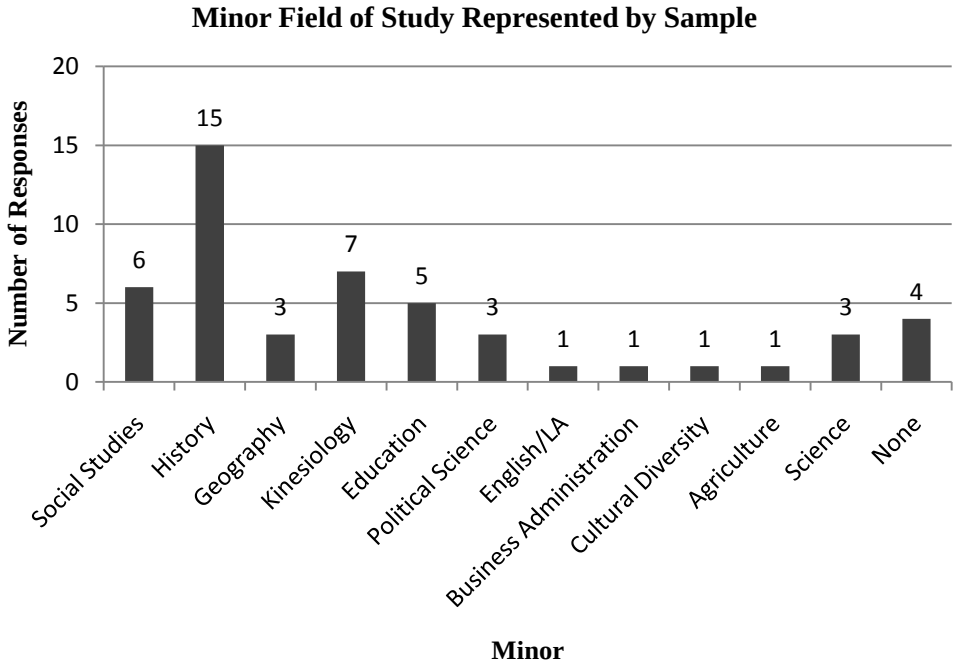

Figure 4: Minor Fields of Study Represented by Sample

Research Question 1: What knowledge of map skills do Texas ninth grade World Geography teachers possess?

The first research question addresses the knowledge teachers possess about map skills. Three survey items were designed to gather information about the respondents' educational preservice, inservice, and informal geographic educational histories in order to obtain this information.

Preservice Education

Preservice education is the education a teacher receives before becoming a teacher. Item 6 addresses this phase of education and was posed in two parts. First, respondents were asked the number of courses geography course completed as part of his or formal postsecondary education. Assuming each course is worth three credit hours,

multiplying the number of courses by three will provide an estimate of the number of course credit hours each respondent completed. Averages were calculated for all respondents and by group. The number of courses completed for all respondents ranged from zero to ten. The range for majors was five to ten, and for non-majors zero to eight. As expected, the average quantity of geography courses completed by majors was higher than non-majors. The mean number of courses for majors was 7.5 compared to 1.7 for non-majors and 2.6 for the whole group. The results are displayed in Table 6.

Table 6: Average Number of Geography Courses Completed

Subject	Mean	Median	Mode
Majors	7.5	7.5	6, 8, 10
Non-Majors	1.7	1	0
All Respondents	2.6	1.5	0

The underlying assumption upon which this research is based is that geography majors have completed more postsecondary geography coursework than their non-major counterparts. To substantiate this assumption, the chi-square statistic was calculated to determine if the differences in the quantity of courses completed by the two groups were statistically significant. Responses were nominally categorized by nested means for comparison purposes. Responses by group are illustrated in Table 7. The results of the chi-square test revealed that χ^2=19.465 with one degree of freedom. The value of χ^2 is greater than the critical value of 3.841 at p<.05, rejecting the null hypothesis of no difference, and confirming that there is a statistically significant difference between the two groups. The results of the chi-square test are illustrated in Table 8.

Table 7: Coursework Completed, Nominal Categories by Nested Means

Group	Above Mean	Below Mean
Majors	100.0 %	0.0 %
Non-Majors	20.5 %	79.5 %
All Respondents	32.7 %	67.3 %

Table 8. Item 6. Chi-Square Tests Results

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	19.465[a]	1	.000
Continuity Correction(a)	16.018	1	.000
Likelihood Ratio	21.141	1	.000
Linear-by-Linear Association	19.091	1	.000
N of Valid Cases	52		

[a]1 cells (25.0%) have expected count less than 5. The minimum expected count is 2.62.

The second part of item 6 asked respondents to list the topics of coursework completed. A very low percentage of respondents provided useful information as 30.8 percent of respondents have completed no geography coursework, and therefore did not have any course topics to list. Additionally, 23.1 percent of those who indicated they had completed at least one course, including three majors, either left the question blank or did not answer the question. For example, respondent 19, a major with ten courses, wrote, "You name it, I took it," and respondent 43, a non-major with one course, wrote, "geography." Upon reading the remaining responses, six categories emerged, including: regional geography, physical geography, human geography, fundamental themes, conservation and natural resources, and geographic skills courses. Results are displayed in Table 9.

Table 9: Topics of Geography Coursework Completed

Subject	Majors	Non-majors	All Respondents
Regional	80 %	73.7 %	75 %
Human	20 %	21.1 %	20.8 %
Physical	60 %	21.1 %	29.2 %
Conservation/Natural Resources	0 %	15.8 %	12.5 %
Fundamentals of Geography	40%	47.4 %	45.8%
Skills	60 %	5.2 %	16.0 %

Note: Percentages represent the percent of total respondents within a category. For example, 19 non-majors provided a response to this item. Of those, 73.7 % listed a regional course topic.

The majority of both majors and non-majors listed at least one regional course, with 80 percent of majors and 73.7 percent of non-majors, respectively. While it would be expected that majors would show a higher percentage of responses for each category, two categories show the opposite. A higher percentage of non-majors than majors listed courses in the human geography and conservation and natural resources categories. Four non-majors listed human geography topics, compared with one major. Three non-majors, but no majors, listed conservation and natural resources courses. A possible explanation for this occurrence may be the major or field of study for the non-major respondents. For example, the three non-major respondents that listed conservation and natural resources had academic majors in a science discipline. Another possible explanation for this occurrence is the small sample size of majors who provided answers to this question.

Inservice Education

Inservice education is the education a teacher receives after beginning his or her career as an educator. One example of this type of education is professional development training. Item 7 deals with inservice education and was posed in two parts. The first part asked if the respondent had attended any geography-related professional development trainings. Of those responding, 59.6 percent of respondents indicated they had attended at least one geography-related trainings. The second part of the question asked for the topics of the trainings. As with the second part of item 5, there was a low rate of valid responses. Forty-one percent indicated they had not attended any training, and therefore had no topics to list. An additional 9.6 percent replied *yes* to the first part, but provided a response for the second part that did not answer the question. For example, respondent 16 wrote, "I usually attend approximately 24 to 60 hours of Geography-related professional development each year. Topics would be far too numerous and varied to mention."

The remaining responses fell within six categories: regional topics, use of technology, Advanced Placement/Gifted and Talented (AP/GT), map skills, integrated history and geography, and curriculum and assessment. The highest percentage of respondents indicated they had attended a workshop on AP/GT (54.8 %), with 87.5 percent of majors and 43.5 percent of non-majors listing that topic. Results are illustrated in Table 10.

Table 10: Topics of Professional Development Trainings Attended

Subject	Majors	Non-majors	All Respondents
Regional	25 %	17.4 %	19.4 %
Technology	37.5 %	21.5 %	25.8 %
AP/GT	87.5 %	43.5 %	54.8 %
Map skills	37.5 %	28.7 %	16.1 %
Integrated History and Geography	50 %	13.1 %	22.6 %
Curriculum and Assessment	25 %	26.1 %	25.8 %

Note: Percentages represent the percent of total respondents within a category. For example,10 of 23(43.5 percent) non-majors attended a geography-related AP/GT training . 54.8 percent of all respondents attended training that fit in this category.

Informal Education

The final question on the survey dealing with teachers' education background has to do with informal geography education. Informal education in general describes the education that takes place outside of a classroom or formal setting. Item 23 inquired as to whether or not respondents subscribe to any geographic publication, such as *National Geographic Magazine*. Twenty-one percent of respondents indicate that they do subscribe to such a publication.

Summary of Research Question 1 Results

By reviewing survey responses holistically, the formal and informal educational backgrounds of the survey respondents provide a good understanding of the geography and map skills trainings, or lack thereof, that these teachers have had. In general, majors have received more training on a wider variety of geography topics than their non-major counterparts due to the differences in quantity of preservice geography courses between the two groups. It should be noted that 15.3 percent of respondents, all non-majors,

indicated that they had neither completed any geography coursework nor attended any geography-related professional development training.

The survey participants have, on average, 12.7 years of teaching experience, with 11.2 years of experience teaching social studies in general, and 8.3 years teaching geography specifically. Of the teachers, 15.4 percent majored in geography, while 84.6 percent were non-geography majors. The non-geography majors fields of study were varied, but the majority of non-majors (54.5 percent) majored in history or other social studies field. The remaining 45.5 percent majored in an unrelated field. Geography course topics include the fundamentals of geography, conservation and natural resources, geographic skills, as well as physical, regional, and human geography topics. There was a statistically significant difference in the number of post-secondary geography courses completed by majors and non-majors. On average, majors completed 7.5 courses compared to 1.7 for non-majors.

Almost 60 percent of respondents reported attending at least one geography-related professional development workshop. The topics for these workshops included use of technology, Advanced Placement/Gifted-and-Talented, map skills, integrated history and geography, and curriculum and instruction.

Research Question 2: Teacher Practices: What, When, and How Map Skills are Taught

The second research question addresses teacher practices by examining how teachers incorporate map skills in their geography courses. Teachers were asked: a) what map skills they teach, b) when the map skills are taught throughout the school year and, c) the percentage of instructional time dedicated to the lessons and how map skills are

taught in relation to other lessons. Survey items 9, 10, 11, 14, and 15 address what map skills are taught, items 18 and 19 address when map skills are taught, and items 17 and 20 address how map skills are taught.

Research Question 2 (a): What map skills are taught?

Six items address what map skills are taught. The first three items in this set deal with outside influences, often beyond a teacher's control such as textbook adoption and curriculum standards, that effect the curricular decisions made about content and skills taught. As these decisions are not made by the individual teachers, it is assumed that the teacher's educational background has no influence on these decisions and, as such, no attempt will be made to compare responses between the major and non-major categories.

Item 9 was a closed-ended question in which respondents were asked to select the guidelines that determine the geography curriculum for their class or school. Multiple answers were permitted. The majority of respondents (96.1 percent) answered that the state curriculum guidelines, the Texas Essential Knowledge and Skills (TEKS), were used alone or in conjunction with another set of guidelines. Full results are displayed in Figure 5.

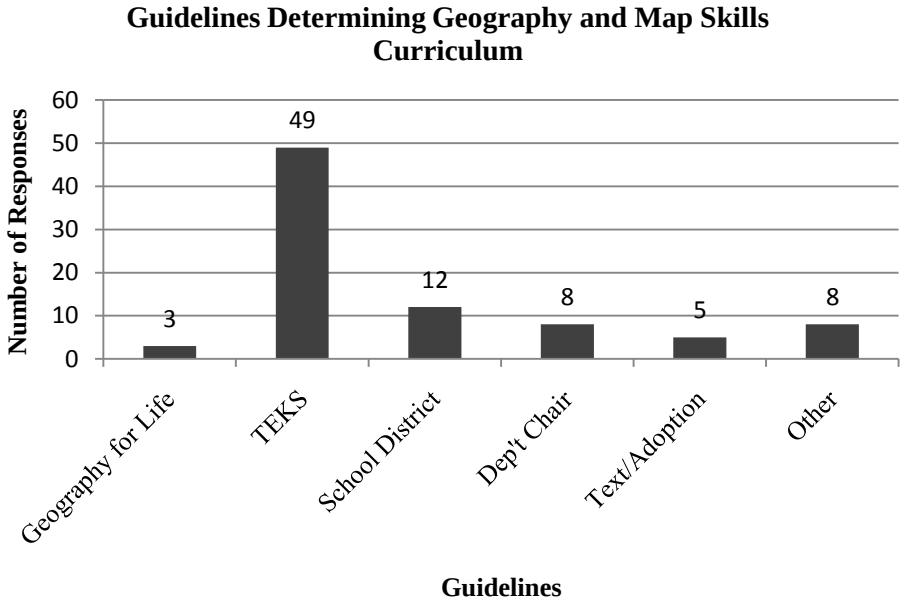

Figure 5: Guidelines used by teachers to plan map skills lessons

Item 10 was presented in two parts. The first part was a closed-ended dichotomous question in which respondents were asked if they teach map skills. 50 respondents answered the question and all 100 percent indicated that they do teach map skills. The second part was a follow-up and provided space for an open-ended response explaining why map skills are not taught. As all respondents answered that they do teach map skills, this question did not receive any responses.

The remaining three survey items addressing what map skills are taught were designed to provide insight into the teachers decisions about what map skills to teach. Item 11 was an open-ended question that asked teachers to name resources used to create map skills lessons. Five categories of resources were derived and coded, including: textbook (69.2 percent), map skills book or software (40.4 percent), internet resources (46.1 percent), atlases and maps (15.4 percent), and test questions (5.8 percent).

The frequencies of responses were tallied for each category by major and non-majors groups. For example, respondent 36, a non-major, wrote, "Nystrom World Atlas, *www.enchantedlearning.com* and other lessons found through internet searches." As Nystrom World Atlas is an atlas, and *www.enchantedlearning.com* is an internet clearinghouse for lesson plans, these responses were coded as "atlases and maps" and "internet resources" respectively. Three responses were uncategorized (5.8 percent), while two provided a response that did not answer the question (3.8 percent). For example, respondent 52, a non-major, wrote, "collected through the years – too numerous to mention." An additional five participants (9.6 percent) skipped the question. Results by category and all responses are illustrated in Table 11.

Table 11: Resources Used to Plan Map Skills Lessons

Subject	Majors	Non-majors	All Respondents
Textbook	85.7 %	69.8 %	76.5%
Skills/Activity Book	71.4 %	37.2%	44.7%
Internet Resources	71.4 %	44.2 %	51.1 %
Atlases and Maps	28.6 %	13.9 %	17.1 %
Test Questions	0 %	6.9 %	6.4 %

Note: Percentages represent the percent of total respondents within a category. For example,16 of 43 (43.5 percent) non-majors' responses were categorized as "Skills/Activity Book." While 44.7 percent of all responses fit this category.

Finally, the coded frequencies were cross-tabulated and compared by major and non-major groups to investigate the existence of a statistically significance difference between the two groups. The chi-square statistic was equal to 1.337 (χ^2=1.337) with four degrees of freedom. At the predetermined level of significance (p<.05), the critical value

is 9.488. The test statistic of 1.337 is less than the critical value of 9.488, and fails to reject the null hypothesis of no difference. The results of the test are illustrated in Table 12.

Table 12. Item 11. Chi-Square Test Results

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.337[a]	4	.855
Likelihood Ratio	1.900	4	.754
Linear-by-Linear Association	.011	1	.916
N of Valid Cases	92		

[a]2 cells (20.0%) have expected count less than 5. The minimum expected count is 2.00

Item 15 was a closed-ended question designed to determine the frequency at which teachers use textbooks when planning map skills lessons. Respondents were asked to rate, on a Likert Scale, this frequency along a continuum from "always" to "never". Results are illustrated in Table 13 as percentages of respondents in each of the major and non-major groups and for all respondents. As the majority of both majors and non-majors indicated they use their textbooks to plan map skills lessons "very often" or "sometimes," it does not appear that there is a difference between groups. This was confirmed upon calculating the chi-square statistic to determine if there was a statistically significant difference between the two groups, which revealed that χ^2=3.859 with two degrees of freedom. This result is less than the critical value of 5.991 at p<.05, and fails to reject the null hypothesis of no difference. Results of the chi-square test are illustrated in Table 14.

Table 13: Frequency of Textbook Use When Planning Map Skills Lessons

Subject	Very Often	Often	Sometimes	Rarely	Never
Major	0 %	25 %	75 %	0 %	0 %
Non-major	11.6 %	30.2 %	39.5 %	9.3 %	9.3 %
All respondents	9.8 %	29.4 %	45.1 %	7.8 %	7.8 %

Table 14. Item 15. Chi-Square Test Results

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.859[a]	2	.145
Likelihood Ratio	4.906	2	.086
Linear-by-Linear Association	.004	1	.949
N of Valid Cases	51		

[a]3 cells (50.0%) have expected count less than 5. The minimum expected count is 1.25.

Item 17 was an open-ended response question designed to ascertain the map skills teachers report teaching. Respondents were asked to list the specific map skills on which they teach lessons. The valid response rate for this item was low as 32.7 percent either did not provide an answer or misinterpreted the question and therefore provided an irrelevant answer. For example, when asked what map skills were taught, respondent 17, a non-major, wrote, “map lab.” From this response, it was not possible to determine which map skills are taught by this respondent. The remaining responses were categorized and coded for analysis. Categories identified include: map use and analysis, location, map basics/components, wayfinding, types of maps, and constructing maps. The results by major or non-major and all responses are illustrated in Table 15.

Table 15: Map Skills Taught by Survey Respondents

Map Skill Taught	Majors	Non-majors	All Responses
Use and Analysis	60.0 %	56.7 %	66.7 %
Location	40.0 %	30.0 %	31.4 %
Map Basics/Components	25.0 %	53.3 %	45.7 %
Wayfinding	40.0 %	10.0 %	14.3 %
Types of Maps	0.0 %	33.3 %	28.6 %
Constructing maps	0.0 %	13.3 %	11.4 %

Note: Percentages represent the percent of total respondents within a category. For example, 3 of 30 non-majors (10 percent) responded that they teach wayfinding, while five of the 35 total respondents (14.3 percent) teach that map skill.

The majority of respondents in both categories reported teaching students how to use and analyze maps. The groups appear to differ for the next most-taught skill, as majors were split between location and wayfinding, while non-majors reported that more than half teach map basics/components. The chi-square statistic was calculated to determine if this apparent difference was statistically significant, and the test revealed that it is not. For this variable, χ^2=9.671 with five degrees of freedom. This result is less than the critical value of 11.070 at p<.05, and fails to reject the null hypothesis of no difference. Test results are illustrated in Table 16.

Table 16. Item 17. Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	9.671[a]	5	.085
Likelihood Ratio	11.014	5	.051
Linear-by-Linear Association	1.512	1	.219
N of Valid Cases	68		

[a]7 cells (58.3%) have expected count less than 5. The minimum expected count is .51.

Research Question 2 (b): When are map skills taught?

Two questionnaire items were designed to examine when map skills are taught. Item 18 was a short-response question addressing the percentage of instructional time teachers dedicate to teaching map skills, while item 19 was a closed-response question that examined the timing of the lessons throughout the school year.

For item 18, teachers were asked to estimate the percentage of total instructional time teachers allotted to teaching map skills during the course of the year. Teachers provided their own responses, which were analyzed as a whole and were then grouped into nominal categories by nested means as well as major and non-major groupings for further examination and comparison. Three respondents (5.8 percent) did not provide a response to this question. These participants were excluded from further analysis of this item. On average, teachers reported devoting 20.5 percent of available instructional time to teaching map skills. The range was 2 percent to 70 percent. Majors reported spending a larger percentage of instructional time on map skills than did non-majors. Averages by group are illustrated in Table 17.

Table 17: Average Instructional Time Devoted to Map Skills

Group	Mean	Median	Mode
Majors	33.1 %	22.5 %	20 %
Non-Majors	18.6 %	15 %	10 %
All Respondents	20.5 %	15 %	10 %

To determine if there was a statistically significant difference between the two groups, responses were nominally categorized by nested means for comparison purposes. Response grouping is illustrated in Table 18. The results of the chi-square test revealed that χ^2=0.085 with one degree of freedom. The value of χ^2 is less than the critical value of 3.841 at p<.05, and fails to reject the null hypothesis of no difference between groups. The results of the chi-square test are illustrated in Table 19.

Table 18: Percentage of Instructional time, Nominal Categories by Nested Means

Group	Above Mean	Below Mean
Majors	50 %	50 %
Non-Majors	31.7 %	68.3 %
All Respondents	65.3 %	34.7 %

Table 19. Item 11. Chi-Square Tests Results

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.085[a]	1	.770
Continuity Correction(a)	.000	1	1.000
Likelihood Ratio	.084	1	.771
Linear-by-Linear Association	.084	1	.772

[a]1 cells (25.0%) have expected count less than 5. The minimum expected count is 3.60.

Item 19 was a closed-ended question asking respondents to select a statement that best describes the timing of when map skills lessons are taught throughout the year. The majority of respondents (67.3 percent) indicated that they teach map skills at regular intervals throughout the year. Another 20.4 percent of respondents indicated that they teach the majority of map skills lessons at the beginning of the school year, while the two respondents (4.1 percent) that selected "other" both noted that they teach a heavy load of map skills at the beginning of the year and continue to teach map skills regularly throughout the year. Finally, 8.2 percent of respondents indicated that they teach map skills on an as-needed basis. Three respondents skipped the question. Results by major and non-major groups are illustrated in Table 20. The chi-square statistic was calculated to compare the groups, and revealed that $\chi^2=3.512$ with two degrees of freedom. This value is less than the critical value of 5.991 at $p<.05$, and fails to reject the null hypothesis of no difference. Results of the chi-square test are illustrated in Table 21.

Table 20: Timing of Map Skills Lessons Throughout the Year

Subject	Beginning	Regularly	As Needed	Other
Major	33.3 %	50 %	0 %	16.7 %
Non-major	18.6 %	71.4 %	9.5 %	2.4 %
All respondents	20.4 %	67.3 %	8.2 %	4.1 %

Table 21. Item 16. Chi-square Test Results			
	Value	**df**	**Asymp. Sig. (2-sided)**
Pearson Chi-Square	3.512[a]	2	.173
Likelihood Ratio	3.725	2	.155
Linear-by-Linear Association	3.337	1	.068
N of Valid Cases	52		
[a] *3 cells (50.0%) have expected count less than 5. The minimum expected count is .62.*			

Research Question 2 (c): How are map skills taught?

Two survey items were designed to examine how map skills are taught. Item 17 (a) was concerned with the use of technology-based resources such as a Geographic Information System (GIS) or web-based mapping such as Google Earth to teach map skills. It was an opened-ended question that asked respondents to provide a list of resources used. Item 17 (b) was included as a follow-up to 17 (a) to gain insight as to why technology was not being used if that were the case. It was a closed-response question designed for informational purposes only and these responses will not be used for comparison purposes. Item 20 was a closed-response question asking teachers to choose the amount of map skills instruction integration with other geography course content lessons.

Responses to item 17 were categorized and coded. Responses were tallied by category and then cross-tabulated by major and non-major groups for comparison. Three participants (5.7 percent) skipped the question. Results are illustrated in Table 22. The majority of respondents using technology-based resources specified virtual maps and

globes programs. An example of this type of program is Google Earth. Of the respondents indicating that they do not use technology-based resources, the majority explained that they do not have access to the technology in their school or class. Because this circumstance is an outside influence beyond the teacher's control and unrelated to educational background, respondents in this category were excluded from the comparison test.

Table 22: Technology-based Resources Used to Teach Map Skills

Technology	Majors	Non-majors	All Responses
Virtual Maps/Globes	87.5 %	53.7 %	59.2 %
GIS	37.5 %	12.2 %	16.3 %
GPS	12.5 %	2.4 %	8.2 %
Computer-based skills practice	0.0 %	9.8 %	8.2 %
Online Atlas	0.0 %	4.9 %	4.1 %
Uncategorized	0.0 %	9.8 %	8.2 %
Not Used	12.5 %	24.4 %	22.4 %

Note: Percentages are based on the total number of respondents per category. Totals do not equal 100 percent as multiple answers were allowed.

The responses for item 17 were cross-tabulated by major and non-major groups, and the chi-square test was performed to determine if there was a statistically significance difference between the two groups. The results revealed a χ^2=3.388 with four degrees of freedom. This result is less than the critical value of 9.488 at p<.05, and fails to reject the null hypothesis of no difference between the groups. The results of the chi-square test are illustrated in Table 23.

Table 23. Item 14. Chi-Square Test Results			
	Value	**df**	**Asymp. Sig. (2-sided)**
Pearson Chi-Square	3.388[a]	4	.495
Likelihood Ratio	4.641	4	.326
Linear-by-Linear Association	.174	1	.676
N of Valid Cases	45		
[a]7 cells (70.0%) have expected count less than 5. The minimum expected count is .49.			

To explore how the respondents situate map skills lessons relative to other course content, item 20 asked teachers to rate the level of integration between map skills and other content on a continuum of *almost always stand-alone* to *almost always incorporated*. Forty-nine participants responded to this question. The majority of respondents (81.6 percent) indicated using a mixture of stand-alone and integrated map skills lessons, leaning toward mostly integrated. The results by major and non-major groups are illustrated in Table 24. The chi-square statistic was calculated to compare groups, and χ^2=2.043 with three degrees of freedom, which was less than the critical value for p<.05, and fails to reject the null hypothesis of no difference between groups. Results of the chi-share test are displayed in Table 24.

Table 24: Integration of Map Skills Lessons with other Course Content

Subject	Stand Alone	Sometimes Integrated	Mostly Integrated	Integrated
Major	0.0 %	14.3 %	57.1 %	14.3 %
Non-major	2.4 %	45.2 %	40.5 %	14.3 %
All respondents	2.0 %	40.8 %	42.9 %	14.3 %

Table 25. Item 15 Chi-Square Tests Results			
	Value	**df**	**Asymp. Sig. (2-sided)**
Pearson Chi-Square	2.939[a]	3	.401
Likelihood Ratio	2.913	3	.405
Linear-by-Linear Association	.003	1	.955
N of Valid Cases	49		
[a]2 cells (25.0%) have expected count less than 5. The minimum expected count is 3.21			

Summary of Research Question 2 Results

Many decisions teachers make about what map skills to teach are influenced by outside forces, such as state and local curriculum frameworks (for example, the TEKS). Of the teachers surveyed, 96.1 percent said that the TEKS were used in planning what map skills to teach. All teachers indicated that they do teach map skills, and use varying sources to create lessons, including the textbook, atlases and maps, skills workbooks and software, or test questions. The majority of respondents reported using map skills lessons from the text at least part of the time, with 74.5 percent using it *sometimes* or *often.*

The most-taught map skills were map use and analysis, followed by map basics and components, location, and wayfinding. The respondents, on average, spend approximately 20 percent of total instructional time teaching map skills. After testing each variable using the chi-square test, it was revealed that there is no statistically significant difference between the major and non-major group responses of what map skills are taught, the sources used to plan the lessons, when and how often map skills are taught throughout the year, or how these skills are taught.

Research Question 3: Teacher Beliefs about Map Skills

The third research question addressed teachers' beliefs about map skills. Four items on the questionnaire addressed this question. Item 12 inquired as to which map skill is most important for students to learn, while item 16 asked which activity they felt was most effective in improving student understanding of maps. Item 21 asked teachers to rank, on a scale of one to ten, the importance of including map skills in geography courses and history courses, respectively. Finally, item 13 asked teachers to identify what they felt most influences their decisions about map skills lessons.

Item 12 was an open-ended question that addressed what respondents believe to be the most important map skill for students to learn. Twelve participants, including three majors and nine non-majors, did not respond to this question. All responses were read, and five categories were identified: components of a map, location, wayfinding, types of maps, and map use and interpretation. The majority of both major and non-major respondents named map use and interpretation as the most important skill to learn. The responses by group are illustrated in Table 26. The chi-square statistic was calculated to compare the groups, finding that $\chi^2=1.453$ with four degrees of freedom, which was less than the critical value of 9.488 for $p<.05$, and fails to reject the null hypothesis of no difference between groups. Results of the chi-share test are displayed in Table 27.

Table 26: Most Important Skill to Learn

Skill	Majors	Non-majors	All Respondents
Map Components	0.0 %	13.9 %	14.2 %
Types of Maps	0.0 %	8.3 %	7.1 %
Location	20 %	19.4 %	7.1 %
Wayfinding	20 %	13.9 %	14.6 %
Map Use and Interpretation	60 %	44.4 %	45.2 %

Table 27. Item 18. Chi-square Test

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.453[a]	4	.835
Likelihood Ratio	2.396	4	.663
Linear-by-Linear Association	.624	1	.430
N of Valid Cases	41		

[a]7 cells (70.0%) have expected count less than 5. The minimum expected count is .37.

Item 16 was an open-ended question that addressed what respondents believe to be the activity most effective at improving student understanding of maps. Forty-three percent of respondents skipped this question, including all but two of the majors. As this action would cause a very skewed image of the results when presented as percentages, responses are only presented for the group as a whole. No attempt was made to make a comparison between the groups as too few majors provided valid responses to meet the minimum suggested sample size for the chi-square test.

Five categories of activities emerged from the item responses: creating maps, using maps to answer questions, using geospatial technology, real-life activities, and repetitive exposure. Thirty-five percent of respondents felt that having students create

their own maps was the best activity for increase student understanding of maps. At 28.9 percent, the second most-mentioned category was having students use maps to answer questions. Real-life activities and repetitive exposure followed with 21 percent of respondents each. The remaining 10 percent of responses mentioned using geospatial technology.

Item 21 (a) and (b) asked the participants to rank, on a scale of one to ten, the importance of teaching map skills in geography and history courses, respectively. All of the 49 respondents to these questions ranked the importance of teaching map skills to be of equal importance in both subjects. The average ranking of importance was 9.12 for all respondents. The range of ranks for majors was 8 to 10, with a mean of 9.5, and a median and mode of 10. The range of ranks for non-majors was 1 to 10, with a mean of 9.07. The median and mode of ranks for non-majors was also 10. To compare the responses from the two groups, the rankings were categorized using nestled means then compared using the chi-square test. Results are illustrated in Table 28.

Table 28: Item 21 (a) and (b): Nominal Categories by Nested Means

Group	Above Mean	Below Mean
Majors	66.7 %	33.3 %
Non-Majors	72.1 %	27.9 %
All Respondents	71.4 %	28.6 %

The results of the chi-square test revealed that χ^2=0.076 with one degree of freedom. The value of χ^2 is less than the critical value of 3.841 at p<.05, and fails to reject the null hypothesis of no difference. The results of the chi-square test are illustrated in Table 29.

Table 29. Item 21. Chi-Square Tests			
	Value	**df**	**Asymp. Sig. (2-sided)**
Pearson Chi-Square	.076[a]	1	.783
Likelihood Ratio	.074	1	.786
Linear-by-Linear Association	.074	1	.785
N of Valid Cases	49		
[a]2 cells (50.0%) have expected count less than 5. The minimum expected count is 1.71			

Finally, the last item, item 13, was a closed-ended, multiple answer question that addressed what teachers believe to influence their decisions on which map skills to teach. There were 49 valid responses to this question. The response options included State or National Standards, school district, the textbook, college coursework, professional development training, or other. Twenty percent of respondents selected *other* and were allowed to provide a unique response. These responses fit into one of two categories: personal experience or student needs. An example of the latter came from respondent 7, who wrote, "What I know the students need." An example of the former was provided by respondent 20, who wrote, "having lived in Europe for six years and traveled extensively throughout both Europe and the United States." These responses were subsequently coded and added to the bank of possible responses for comparison. The responses by group are illustrated in Table 30.

Table 30: Influences on Map Skills Decisions

Influence	Majors	Non-majors	All Respondents
College Coursework	50.0 %	12.2 %	30.6 %
Professional Development	62.5 %	51.2 %	55.1 %
Textbook	25.0 %	34.1 %	32.7 %
District Curriculum	12.5 %	17.1 %	16.3 %
State/National Standards	37.5%	73.2 %	67.3 %
Personal Experience	0.0 %	14.6 %	12.2 %
Student Needs	25.0 %	4.9 %	8.1 %

Note: Percentages represent the percent of total respondents within a category. For example, 11 or 41 non-majors, or 46.3 percent said professional development influenced decisions made on map skills in their class. Totals do not equal 100 percent as multiple responses were provided.

Two categories received the most responses. The majority of non-major respondents (73.2 percent) indicated that the State or National Standards influence their decisions on what map skills to teach; conversely, the majority of majors (62.5 percent) indicated professional development training. Professional development training was the second most-selected influence for non-majors, while college coursework was second for majors (50 percent). The chi-square statistic was calculated to test if a statistically significant exists between the two groups, and $\chi^2 = 7.560$ with six degrees of freedom, which was less than the critical value of 12.026, and fails to reject the null hypothesis of no difference between groups. The results of the chi-square test are illustrated in Table 31.

Table31. Item 21 Chi-square Test			
	Value	**df**	**Asymp. Sig. (2-sided)**
Pearson Chi-Square	7.540[a]	6	.274
Likelihood Ratio	7.444	6	.282
Linear-by-Linear Association	1.768	1	.184
N of Valid Cases	108		
[a]7 cells (50.0%) have expected count less than 5. The minimum expected count is 0.63.			

Summary of Research Question 3 Results

As a whole, the respondents felt that it is very important to teach maps in both geography and history courses. On a scale of one to ten, the importance received an average ranking of 9.12. The majority of teachers felt that the most important skills for students to learn is how to use and interpret a map, while others felt that it was important for students to learn the basic components of maps. When asked to describe the best map skills activity, the majority responded that having students create their own maps was the best way to improve their understanding. Others responded that having students use maps to answer questions was also helpful. When asked to describe what they feel most influences their decisions on what and how to teach map skills, the majority of teachers indicated the TEKS or National Standards, followed by professional development training. Upon comparing the responses provided by major and non-major groups, it was found that no statistically significant difference exists between the two.

CHAPTER V

DISCUSSION

The purpose of this study was to investigate if a difference exists between the teaching practices and beliefs of ninth grade World Geography teachers with a geography major and those without a geography major based on the underlying theory that teachers' practical theories are created through education and experience. Since geography majors completed more geography coursework, and, in effect, were presumably more exposed to maps as part of their preservice education than their non-major counterparts, it stands to reason that there would be a difference in what and how maps skills are taught in the classroom as well as the beliefs about map skills expressed by the two groups. The results of this study, however, indicate that this is not the case and that no statistically significant difference exists in the teaching practices and beliefs about map skills expressed by the two groups based on the simple classification of being a geography major or non-major alone.

This result, however, should not and does not ease concerns that geography teachers are underprepared to teach the geography content and skills necessary to become geographically literate. It simply provides an indication that there is no difference between the two groups, and does not attempt to judge the competency and efficacy of the teachers. While it is hoped that the teachers participating in this study are exemplary geography teachers, quite the opposite might be true. Therefore, further studies must be

conducted to determine if a difference exists between the competency and efficacy levels of geography teachers with a geography major and those without.

One possible explanation of this lack of difference is that the teachers that participated in this study are, for the most part, experienced teachers, and therefore have many intervening opportunities in which their beliefs about map skills and map literacy may have been affected. This explanation is supported by a 2004 study by Gandy and Kruger, in which a relationship was found between exposure to geography content and skills through professional development training and the extent to which the National Geography Standards are implemented. While not looking at the teaching practices and beliefs teachers have about these content and skills per se*,* the study indicates that attending geography professional development does influence what is taught in the classroom.

Additional research would be needed to identify possible differences in practical theories based on different causes, such as exposure to more geography content and skills through professional development training. One way to eliminate experience as possible leveler would be to conduct a repeat study surveying only early career schools with one or two years of teaching experience. Such a study may give a more accurate account of the impact of preservice education on their practices and beliefs about map skills as less time has elapsed, diminishing the chances that other influences, such as from inservice training, have modified the teachers' experiences and therefore practical theories.

Another explanation of the lack of difference found between in the teaching practices and beliefs of the major and non-major participants is that the data are self-reported and were limited to information collected via a single questionnaire. Though

teachers were asked to describe their beliefs and teaching practices, what teachers *say* they do may be very different from what is done in reality. Examples of this disconnect between what teachers say they believe and practice and what they actually do believe and practice are found in the literature. One example of a study that revealed such a discrepancy is a 2004 report by the Research and Evaluation Division of the Education Alliance at Brown University on the implementation of school reform models based on the assessment of the implementation of 61 reform-based instructional indicators. In the course of the study, it was found that, in general, there was a large discrepancy between the level of implementation of the indicators as reported by the teachers on a survey and the levels of implementation actually observed in the classroom. As an example, the report described a case where 45 percent of teachers reported that they *routinely* helped students build connections between the written word and the author's intentions, while less than two percent were actually observed to be doing so at that rate over a four year period.

Such a discrepancy between what was reported in the current study and what actually is taught in the classroom is possible in this study. Therefore, while the results of the current study did not indicate any significant difference in the teaching practices and beliefs between majors and non-majors, the results do not prove there are none. Further qualitative research through interviews and in-class observations would provide greater insight into the teachers' actual, rather than reported, teaching practices and beliefs.

APPENDEX A

IRB APPROVAL CERTIFICATE

TEXAS STATE UNIVERSITY
SAN MARCOS
The rising STAR of Texas

Institutional Review Board

Request For Exemption

Certificate of Approval

Applicant: Cheryl Frazier

Request Number : EXP2010Z5705

Date of Approval: 02/25/10

Assistant Vice President for Research and Federal Relations

Chair, Institutional Review Board

APPENDEX B

SURVEY INSTRUMENT

Geographic Educators' Views of Map Skills in the Classroom

Dear Teacher,

As part of my graduate studies at Texas State University-San Marcos, I am conducting research to gather information about how map skills are taught in the 9th grade World Geography. You have been selected for participation because you were listed as a Social Studies teacher at the secondary level. Even if you are no longer teaching Geography, please take the time to complete this questionnaire based on your experiences when you did teach it.

This survey will take about 10 minutes to complete. It asks questions about your geography background and how you teach map skills to your students. Please provide as much detail as possible.

In order to ease the collection of information for this project, I have designed a short questionnaire using an online-based survey program called Survey Monkey. This questionnaire has been reviewed by the Texas State University-San Marcos Institutional Review Board and has been deemed "exempt from further review." The following link will direct you to the questionnaire hosted on this site. If for some reason the link is not hyperlinked, please copy and paste it into the URL address bar at the top of the page.
http://www.surveymonkey.com/s/6ZHRRJD

Thank you in advance for your time and participation. Any information you provide to me is appreciated and will assist me in completing my thesis research.

Sincerely,

Cheryl Frazier
Graduate Student in Geography Education
Texas State University-San Marcos

Geographic Educators' Views of Map Skills in the Classroom

1. (a) How many years have you been teaching? _____
   (b) How many years have your been teaching social studies? _____
   (c) How many years have you been teaching geography? _____

2. Did you receive your certification in Texas? Yes No

3. What subjects are you certified to teach? (select all that apply)
   ____History
   ____Geography
   ____Social Studies
   ____English/Language Arts
   ____Mathematics
   ____Sciences
   ____Other (please specify) _____

4. What was your major? _____

5. What was your minor? _____

6. (a) How many postsecondary courses did you complete in geography? _____
   (b) Please specify the course topics for all courses you completed in geography.

_____

_____

_____

7. (a) Have you attended any geography-related professional development training?

   yes no

. (b) Please specify the topics for any geography-related professional development

trainings you have attended. _____

_____

8. What course(s) do you teach? _____

_____

9. What guidelines determine you geography curriculum?

_____Texas Essential Knowledge and Skills

_____National Geography Standards

_____School District

_____Textbook

_____Department coordinator/chair

_____Other (please specify) _____

10. (a) Do you teach map skills? yes no

(b) If no, please explain (select all that apply)

____Map skills are not required by the curriculum

____The course I teach does not necessitate map skills

____My students already have sufficient map skills

____I do not feel comfortable teaching map skills

____What are map skills?

11. Please list specific map skills that you teach _____

_____

_____

12. Of the skills listed above, which do you feel is most important for students to learn?

_____

_____

13. What do you feel most influences your decisions about what to include in map skills lessons?

____Texas Essential Knowledge and Skills

____National Geography Standards

____School District

____Department coordinator/chair

____Professional Development training

____College Coursework

____Textbook

____Other (please specify) _____

14. What sources do you use to develop lessons on map skills? (select all that apply)

____Texas Essential Knowledge and Skills

____Textbook

Title, author, publisher _____

____Map/Globe Skills book

Title, author, publisher _____

____Internet Lesson plans

Website (s) _____

____Other (please specify) _____

15. How often do you use the textbook in the planning of map skills lessons?

____Never

____Rarely

____Sometimes

____Often

____Very Often

16. What activities do you feel are most effective in improving student understanding of maps? _____

_____

17. (a) Do you use technology-based resources (such as a GIS or Google Earth) to teach map skills? if yes, please specify _____

_____

(b) if no, please explain

____I do not have access to technology in my classroom/school

____Technology-based resources are inappropriate at this level

____I am unsure about what technology-based resources are available

____I am not comfortable teaching map skills using technology-based resources

____I have not had the opportunity to learn about using technology-based resources to teach map skills

18. Approximately what percentage of total instructional time during the entire school year do you spend teaching map skills? _____

19. Which statement best describes the timing of map skills lessons in your class?

____I teach the majority of map skills lessons at the beginning of the school year

____I teach lessons on map skills at regular intervals throughout the school year

____I teach lessons on map skills on an as-needed basis

____I do not teach map skills lessons

____other (please specify)

20. Which statement best describes the situation of map skills lessons in your class?

____I teach the majority of map skills lessons as stand-alone lessons

____I sometimes teach map skills lessons as stand-alone lessons and sometimes teach map skills lessons as an integrated part of other course content

____I teach the majority of map skills lessons as an integrated part of other course content

21. (a) On a scale of 1-10, with one being "not important" and 10 being "very important," how important is it to teach map skills as part of a geography course? _____

(b) On a scale of 1-10, with one being "not important" and 10 being "very important," how important is it to teach map skills as part of a history course?

22. Do you subscribe to any geographic publications such as *National Geographic Magazine?*

APPENDEX C

MAP SKILLS-SPECIFIC TEKS

Subchapter 113.34. World Geography Studies (One Credit).

(C) Knowledge and skills.

(6) Geography. The student understands the types and patterns of settlement, the factors that affect where people settle, and processes of settlement development over time. The student is expected to:

(a) locate settlements and observe patterns in the size and distribution of cities using maps, graphics, and other information; and

(b) explain the processes that have caused cities to grow such as location along transportation routes, availability of resources that have attracted settlers and economic activities, and continued access to other cities and resources.

(7) Geography. The student understands the growth, distribution, movement, and characteristics of world population. The student is expected to:

(A) construct and analyze population pyramids and use other data, graphics, and maps to describe the population characteristics of different societies and to predict future growth trends;

(B) explain the political, economic, social, and environmental factors that contribute to human migration such as how national and international migrations are shaped by push-and-pull factors and how physical geography affects the routes, flows, and destinations of migration;

(C) describe trends in past world population growth and distribution; and

(D) develop and defend hypotheses on likely population patterns for the future

(21) Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of sources including electronic technology. The student is expected to:

(A) use historical, geographic, and statistical information from a variety of sources such as databases, field interviews, media services, and questionnaires to answer geographic questions and infer geographic relationships;

(B) analyze and evaluate the validity and utility of multiple sources of geographic information such as primary and secondary sources, aerial photographs, and maps;

(C) construct and interpret maps to answer geographic questions, infer geographic relationships, and analyze geographic change;

(D) apply basic statistical concepts and analytical methods such as computer-based spreadsheets and statistical software to analyze geographic data; and

(E) use a series of maps, including a computer-based geographic information system, to obtain and analyze data needed to solve geographic and locational problems.

(22) Social studies skills. The student communicates in written, oral, and visual forms. The student is expected to:

(A) design and draw appropriate maps and other graphics such as sketch maps, diagrams, tables, and graphs to present geographic information including geographic features, geographic distributions, and geographic relationships;

(B) apply appropriate vocabulary, geographic models, generalizations, theories, and skills to present geographic information;

(C) use geographic terminology correctly; and

(D) use standard grammar, spelling, sentence structure, and punctuation.

Source: Excerpted from §113.34 of the Texas Essential Knowledge and Skills, adopted to be effective September 1, 1998, 22 TexReg 7684, and are available at http://www.tea.state.tx.us (accessed June 18, 2010)

APPENDIX D

APPROVED EDUCATOR STANDARDS FOR 8-12 SOCIAL STUDIES TEACHERS

SOCIAL STUDIES STANDARDS

Standard I. The social studies teacher has a comprehensive knowledge of the social sciences and recognizes the value of the social sciences.

Standard II. The social studies teacher effectively integrates the various social science disciplines.

Standard III. The social studies teacher uses knowledge and skills of social studies, as defined by the Texas Essential Knowledge and Skills (TEKS), to plan and implement effective curriculum, instruction, assessment, and evaluation.

Standard IV. History: The social studies teacher applies knowledge of significant historical events and developments, as well as of multiple historical interpretations and ideas, in order to facilitate student understanding of relationships between the past, the present, and the future.

Standard V. Geography: The social studies teacher applies knowledge of people, places, and environments to facilitate students' understanding of geographic relationships in Texas, the United States, and the world.

Standard VI. Economics: The social studies teacher knows how people organize economic systems to produce, distribute, and consume goods and services, and uses this knowledge to enable students to understand economic systems and make informed economic decisions.

Standard VII. Government: The social studies teacher knows how governments and structures of power function, provide order, and allocate resources, and uses this knowledge to facilitate student understanding of how individuals and groups achieve their goals through political systems.

Standard VIII. Citizenship: The social studies teacher understands citizenship in the United States and other societies, and uses this knowledge to prepare students to participate in our society through an understanding of democratic principles and citizenship practices.

Standard IX. Culture: The social studies teacher understands cultures and how they develop and adapt, and uses this knowledge to enable students to appreciate and respect cultural diversity in Texas, the United States, and the world.

Standard X. Science, Technology, and Society: The social studies teacher understands developments in science and technology, and uses this knowledge to facilitate student understanding of the social and environmental consequences of scientific discovery and technological innovation.

Standard V. **Geography: The social studies teacher applies knowledge of people, places, and environments to facilitate students' understanding of geographic relationships in Texas, the United States, and the world.**

	Application: What Teachers Can Do ***Teachers of Students in Grades EC–4 (continued)*** 5.10s plan, organize, and complete group research projects that involve asking geographic questions; acquiring, organizing, and analyzing geographic information; answering geographic questions; and communicating results; 5.11s use case studies and geographic information systems to identify contemporary geography problems and issues and to apply geographic knowledge and skills to answer real-world questions; 5.12s use problem-solving processes to identify problems, gather information, list and consider options, consider advantages and disadvantages, choose and implement solutions, and evaluate the effectiveness of solutions; 5.13s use decision-making processes to identify situations that require decisions, gather information, identify options, predict consequences, and take action to implement decisions; and 5.14s relate geographic information and ideas to information and ideas in other social sciences and in other disciplines.

Standard V. **Geography: The social studies teacher applies knowledge of people, places, and environments to facilitate students' understanding of geographic relationships in Texas, the United States, and the world.**

Teacher Knowledge: What Teachers Know	**Application: What Teachers Can Do**
Teachers of Students in Grades 4–8**	***Teachers of Students in Grades 4–8*****
The beginning teacher knows and understands:	The beginning teacher is able to:
5.11k all content specified for teachers in grades EC–4;	5.15s apply all skills specified for teachers in grades EC–4, using content and contexts appropriate for grades 4–8.
5.12k how geographic factors influence the economic development, political relationships, and policies of societies; and	
5.13k the impact of interactions between people and the physical environment on the development of places and regions.	
**See 5.14k below.	**See 5.16s below.

Standard V. **Geography: The social studies teacher applies knowledge of people, places, and environments to facilitate students' understanding of geographic relationships in Texas, the United States, and the world.**

Teacher Knowledge: What Teachers Know

Teachers of Students in Grades 8–12

The beginning teacher knows and understands:

5.14k all content specified for teachers in grades EC–8;

5.15k the impact of geographic factors on major events in U.S. and world history;

5.16k the effects of migration and immigration on society;

5.17k the impact of population growth and modernization on the physical environment;

5.18k how physical processes shape patterns in the physical environment (lithosphere, atmosphere, hydrosphere, and biosphere), including how Earth-Sun relationships affect physical processes and patterns on Earth's surface;

5.19k the patterns and characteristics of major landforms, climates, and ecosystems of Earth and the interrelated processes that produce them;

5.20k how political, economic, and social processes shape cultural patterns and characteristics in various places and regions;

5.21k the growth, distribution, movement, and characteristics of world population;

5.22k how peoples, places, and environments are connected and interdependent;

5.23k the influence of geographic factors on political, social, cultural, and economic developments;

5.24k the geographic significance of economic factors of production;

5.25k reasons for international trade and its importance to the United States; and

5.26k free trade issues and the effects of trade barriers.

Application: What Teachers Can Do

Teachers of Students in Grades 8–12

The beginning teacher is able to:

5.16s apply all skills specified for teachers in grades EC–8, using content and contexts appropriate for grades 8–12.

Source: These standards are directly excerpted from the Texas Education Agency's Approved Educator Standards for 8-12 Social Studies Teachers and may be found at http://www.tea.state.tx.us

REFERENCE LIST

Acheson, Gillian. 2003. Teaching the tool of the trade: An exploration of teachers' beliefs, knowledge, and practices about maps. Ph.D. diss., Texas A&M University, In Dissertations & Theses: Full Text [database on-line]; available from http://www.proquest.com (publication number AAT 3117476; accessed February 23, 2010).

Adler, Susan A. 1991. The education of social studies teachers. In *Handbook of research on social studies teaching and learning: A project of the NCSS*, ed. James P. Shaver, 210-221. New York: Macmillan.

Arnsdorf, Val. 1985. Helping Elementary and Secondary Students to Discover Three Functions that Maps Can Serve. *Social Education* 49, no. 1: 44-46.

Bausmith, Jennifer Merriman, and Gaea Leinhardt. 1998. Middle-School Students' Map Construction: Understanding Complex Spatial Displays. *Journal of Geography* 97, no. 3: 93-107.

Bednarz, Robert S. 2002. The Quantity and Quality of Geography Education in the United States: The Last 20 Years. *International Research in Geographical and Environmental Education* 11, no. 2: 160-170.

Bednarz, Sarah W. 2004. US World Geography Textbooks: Their Role in Education Reform. *International Research in Geographical and Environmental Education* 13, no. 3: 223-238.

Bednarz, Sarah W., and Robert S. Bednarz. 1995. Preservice Geography Education. *Journal of Geography* 94, no. 5: 482-486.

Bednarz, Sarah W., Joseph P. Stoltman, and Jongwon Lee. 2004. Preparing Geography Teachers in the United States. *International Journal in Geographical and Environmental Education* 13, no. 2: 176-183.

Bednarz, Sarah W., Mark H. Bockenhauer, and Fred H. Walk. 2005. Mentoring: A New Approach to Geography Teacher Preparation. *Journal of Geography* 104, no. 3: 105-112.

Blackwell, Peggy J. 1995. Reform of Teacher Education: An Opportunity for Geographers. *Journal of Geography* 94, no. 5: 495-500.

Board, Christopher. 1984. Higher Order Map-using tasks: Geographical Lessons in Danger of Being Forgotten, *Cartographica*, 21, no. 1: 85-97.

Boehm, Richard G., John Brierley, and Martha Sharma. 1994. The Bête Noir of Geographic Education: Teacher Training Programs. *Journal of Geography* 93, no. 1: 21-25.

Chiodo, John J., 2007. Student Perceptions of Teaching: Assessing Their Mental Images of Teaching Social Studies. *Journal of Social Studies Research* 31, no. 1: 12-26.

Chiodo, John J. and Jeffery Byford. 2004. Do They Really Dislike Social Studies? A Study of Middle School and High School Students. *Journal of Social Studies Research* 28, no. 1: 16-26.

Chiodo, John J., Leisa A. Martin, and Sherry L. Rowan. 2002. Coaching and teaching social studies: The perceptions of preservice teachers. *Journal of Social Studies Research* 26, no. 2: 10-19.

Cochran-Smith, Marilyn, and Susan L. Lytle. 2006. Troubling Images of Teaching in No Child Left Behind. *Harvard Educational Review* 76, no. 4: 668-726.

Craig, Cheryl J. 2006. Why is Dissemination so Difficult?: the Nature of Teacher Knowledge and the Spread of Curriculum Reform. *American Educational Research Journal* 43, no. 2: 257-293.

Creswell, John W. 2003. *Research Design: Qualitative, Quantitative, and mixed methods approaches* 2d ed. Thousand Oaks, CA: Sage Productions.

Creswell, John W., and Vicki L. Plano Clark. 2007. *Designing and Conducting Mixed Methods Research.* Thousand Oaks, CA: Sage Productions.

Downs, Roger M., and David Stea. 1977. *Maps in Minds: Reflections on Cognitive Mapping*. New York: Harper & Row.

Dumas, Wayne, and Sam Evans. 1997. Minimum State Standards for Secondary Social Studies. *The Social Studies* 88, no. 4: 163-167.

Farrell, Richard T., and Joseph M. Cirrincione. 1989. The Content of the Geography Curriculum – A Teachers Perspective. *Social Education* 53, no. 2: 105-108.

Fink, Arlene. 2009. *How to Conduct Surveys: A Step-by-Step Guide* (4th edition). Sage Publications, Inc.: Thousand Oaks, California.

Gandy, S. Kay, and Darrell P. Kruger. 2004. An Assessment of Influences on the Implementation of the National Geography Standards. *Journal of Geography* 103, no. 4: 161-170.

Geography Education National Implementation Project. 2006. Defining a Highly Qualified K-12 Geography Teacher. http://genip.tamu.edu/definingHQT_10_2006.pdf (accessed October 28, 2009).

Geography Education Standards Project. 1994. *Geography for Life: The National Geography Standards*. Washington D.C.: National Geographic Society Committee on Research and Exploration.

Gilsbach, Michael T. 1997. Improvement Needed: Preservice Geography Teacher Education. *The Social Studies* 88: 35-38.

Gregg, Sr. Madeleine, fcJ. 2001. River Views of Beginning Pre-service Teachers: Content Knowledge Use. *Journal of Geography* 100, no. 2: 61-68.

H.R. 1-107th Congress: No Child Left Behind Act of 2001. (2001). In *GovTrack.us (database of federal legislation).* Retrieved Feb 23, 2010, from http://www.govtrack.us/congress/bill.xpd?bill=h107-1

H.R. 1804-103rd Congress: Goals 2000: Educate America Act. (1993). In *GovTrack.us (database of federal legislation).* Retrieved Feb 23, 2010, from http://www.govtrack.us/congress/bill.xpd?bill=h103-1804

Handal, Gunnar and Per Lauvas. 1987. *Promoting Reflective Teaching: Supervision in Action.* Philadelphia: Open University Press.

Hardwick, Susan W. 1995. Looking Toward the Future: A Concepts, Themes, and Standards Approach to Preservice Teacher Education. *Journal of Geography* 94, no. 5: 513-518.

Hayes, David A. 1993. Freehand Maps Are for Teachers and Students Alike. *Journal of Geography* 92, no. 1: 13-15.

Hermann, Dan. 1995. Overcoming Geographic Innocence in Geography Education. *Journal of Geography* 94, no. 5: 527-529.

Hinton, Perry R., Charlotte Brownlow, Isabella McMurray, and Bob Cozens. 2004. *SPSS Explained*. Routledge Inc.: New York.

Ingersoll, Richard M. 1999. The Problem of Underqualified Teachers in American Secondary Schools. *Educational Researcher* 28, no. 2: 26-37.

Johnson, Howard G. 1995. The National Geography Standards and Your Undergraduate Curriculum: The Opportunity That Knocks More Than Once. *Journal of Geography* 94, no. 5: 534-537.

Leinhardt, Gaea, Catherine Stainton, and Jennifer Merriman Bausmith. 1998. Constructing Maps Collaboratively. *Journal of Geography* 97, no. 1: 19-30.

Levin, Barbara, and Ye He. 2008. Investigating the Content and Sources of Teacher Candidates' Personal Practical Theories (PPTS). *Journal of Teacher Education* 59, no. 1: 55-68.

Libbee, Michael. 1995. Strengthening Certification Guidelines. *Journal of Geography* 94, no. 5: 501-504.

MacEachren, Alan M. 1994. Some Truth with Maps: A Primer on Symbolization and Design, Washington, D.C.: The Association of American Geographers.

Morrill, Robert W., and Joseph P. Enedy, and Steven K. Pontius. 1995. Teachers and University Faculty Cooperating to Improve Teacher Preparation. *Journal of Geography* 94, no. 5: 538-542.

Nardi, Peter M. 2003. *Doing Survey Research: A Guide to Quantitative Methods.* Boston: Allyn and Bacon.

Ormrod, Jeanne Ellis, Richard K. Ormrod, Ellen D. Wagner, and Rose C. McCallin. Reconceptualizing Map Learning. *The American Journal of Psychology* 101, no. 3: 425-433.

Petersen. James F. 1997. Human Information Processing of Maps: Seven Lessons for Geographers. In *The First Assessment: Research in Geographic Education*, eds. Richard G. Boehm and James F. Petersen, 111-118. San Marcos, TX: Gilbert M. Grosvenor Center for Geographic Education, Southwest Texas State University.

Petersen, James F., Salvatore J. Natoli, and Richard G. Boehm. 1994. The Guidelines for Geographic Education: A Ten-Year Retrospective. *Social Education* 58, no. 4: 206-210.

Presson, Clark C. 1982. The Development of Map-reading Skills. *Child Development* 53: 196-199.

Research and Evaluation Division of the Education Alliance at Brown University. 2004. Implementing for Success: An analysis of Five CSR Models Accelerated School Summary. Providence: Education Alliance at Brown University. http://web2.uconn.edu/asp/Accelerated_Schools_Plus/files/Brwon%20Study.pdf (accessed June 16, 2010).

Salter, Kit. 1990. What is the Essence of Geographic Literacy? *Focus* 40, no. 2: 26-29.

Salvio, Paula M. 2010. Personal Practical Knowledge Research. *Encyclopedia of Curriculum Studies.* Sage Publications. http://www.sage-ereference.com/curriculumstudies/Article_n347.html (accessed June 12, 2010).

Shulman, Lee S. 1986. Those Who Understand: Knowledge Growth in Teaching. *Educational Researcher* 15, no. 2: 4-14.

Texas Education Agency. Approved Educator Standards: Social Studies. http://www.tea.state.tx.us/index.aspx?id=5938&ekfxmen_noscript=1&ekfxmensel=e105c3e3e_620_634 (accessed 6-18-2010).

Texas Education Agency. 1998. Texas Essential Knowledge and Skills. www.tea.state.tx.us (accessed June 18, 2010).

Wayne, Andrew J., and Peter Youngs. 2003. Teacher Characteristics and Student Achievement Gains: A Review. *Review of Educational Research* 73, no. 1: 89-122.

Weller, Kay E. 2002. Do Pre-Service Secondary Geography Teachers Want to be Teachers or Coaches? *Journal of Geography* 101, no. 3: 131-136.

Wilson, Kris, Kay E. Weller, and David B. Cole. 1998. Colorado's Geography Standards: An Analysis of Preservice Teacher Preparation. *Journal of Geography* 97, no. 6: 269-280.

Zientek, Linda Reichwein. 2007. Preparing High-Quality Teachers: Views From the Classroom. *American Educational Research Journal* 44, no. 4: 959-1001.

VITA

Cheryl Ann Frazier was born in Austin, Texas, on July 8, 1978, the daughter of Robert Regan Frazier and Sandra Zwerneman Frazier. She attended Pflugerville High School in Pflugerville, Texas, completing her work there in 1996. In 2002, she entered Sam Houston State University in Huntsville, Texas. She received the degree of Bachelor of Arts in History and Geography in August 2005. During the fall of 2005, she attended Oklahoma State University in Stillwater, Oklahoma. In August 2006, she entered the Graduate College of Texas State University-San Marcos.

Permanent Address: 15605 Delahunty Lane

Pflugerville, Texas 78660

This thesis was typed by Cheryl A. Frazier.