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A Phenomenographic Study Of Student Engagement Using Gis-Story Maps In An Eighth-Grade Social Studies Classroom

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A PHENOMENOGRAPHIC STUDY OF STUDENT ENGAGEMENT USING GIS-STORY MAPS IN AN EIGHTH-GRADE SOCIAL STUDIES CLASSROOM

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ABSTRACT

This qualitative phenomenographic study explores students' engagement using GIS-story maps in an eighth-grade social studies classroom from a southeastern United States school district. The study answered the following questions: (1) How do eighth-grade students perceive their engagement with social studies when it is taught using story maps? (2) How do eighth-grade students perceive the relationship between GIS, story maps to their own life? This study investigates students' engagement from the perspective of the students rather than the teacher. Qualitative data collection involved classroom observations, student-written reflections, and oral interviews of fourteen student-participants. The data analysis reveals that students perceive story maps as engaging in four qualitatively different ways: *generating inquiry*, *visualizing information*, *mapping interactively*, and *cycling*. Students see a *geographic* and *cultural* connection between story maps and their lives, and were also able to see *a beyond the classroom* connection. The study presents students' description of themselves when they are engaged, stressing the importance of classroom learning experiences, studenting, evidencing, and fostering intrinsic motivation. The results from the study supported the notion that students want their learning in social studies to include variety and active learning strategies.

DEDICATION

This work is dedicated to my husband, children, family, and friends who have been a constant source of support and encouragement throughout this Ph.D. program.

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CHAPTER I

INTRODUCTION

Although previous research studies have shown that geographic information system (GIS) has the potential to promote engagement, facilitate inquiry, enhance real world experiences, and provide interest for students, studies have not explored how students perceive their engagement when GIS is used. To fill this gap, this study will explore how eighth-grade students perceive their engagement in social studies classes when they are taught using GIS story-maps, and if the students discern any relationship between GIS-story maps and their own life.

This study will employ qualitative methods, specifically structured as a phenomenography. As a research approach, phenomenography addresses "learning, studying, communications, teaching, and instruction (Svensson, 1997, p. 161), and the qualitative differences that occur as a result of classroom learning experiences (Richardson, 1999). Therefore, phenomenography significantly focuses on variation of experience rather than the disparities of individuals involved in the study. The theoretical framework adopted for this study falls within the paradigm of interpretivism, using the methodology of phenomenography, and the epistemology of Constructivism, Theory of Engagement, Culturally Responsive Teaching, Schema Theory, and Critical Pedagogy. Conceptually, this research study supports the National Council for the Social Studies (NCSS College, Career and Civic Life (C3) Framework for Social Studies State Standards (2013), and the National Geography Standards (Heffron & Downs, 2012). The study also aligns with the academic purpose of the four major disciplines within the

umbrella of social studies-civics, economics, geography, and history. The emphasis of the selected conceptual framework correlates with the need for students to be trained to become more aware of societal problems to become knowledgeable and productive citizens.

For over five decades, student engagement has been a focus of researchers, policy makers, and secondary school educators because of its connection to academic performance, high school completion, positive school environment, and efficient instructional practice (Appleton, Christenson & Furlong, 2008; Levin, 2010; Newman, 1992; Parsons & Taylor, 2011). Newman (1992) defined student academic engagement as " a student's psychological investment in and effort directed towards learning, understanding, or mastering the knowledge, skills, and craft that academic work is intended to promote" (p. 12). Students are said to be engaged when they participate in class discussions, stay attentive, focused, and invest time and effort in learning activities (Newman, 1992; Reeve, 2012; Reyes, Brackett, Rivers, White, & Salovey, 2012). Student engagement involves the quality of student involvement in the classroom and academic learning activities. It is not only seen as an essential progression of learning, but an important product of classroom and school accountability (Babb, Saar, Marcotte, Brandon, & Friesen, 2013; Reyes et al., 2012).

Student disengagement describes a situation of gradually disconnecting and reducing effort in academic activities (Balfanz, Herzog, & Mac Iver, 2007; Natriello, 1984). When American secondary school students are disengaged, they withdraw, and they are bored, dissatisfied, and disruptive. They often perform poorly in class, and this eventually leads some students to drop out of school (Reschly, & Christenson, 2012; Skinner, Furrer, Marchland, & Kindermann, 2008).

Research studies have revealed that students start to disengage in social studies classrooms in grade six and higher when they begin to express dissatisfaction with the pedagogical content and process (Marks, 2000; Willms, Friesen, & Milton, 2009). In addition, the performance of American students on social studies assessments shows that students are not performing at the expected level. For example, results from the National Assessment of Educational Progress (NAEP) indicate that there was no significant change in the scores of American students in social studies courses in 2014 compared to 2010 (NAEP, 2014). The results from the assessment also reveal that the average American student lacks the ability to comprehend and apply social studies skills and concepts (NAEP, 2014). Additionally, investigations of secondary classrooms indicate that teachers tend to use the traditional teacher-centered and survey methods of instruction that require students to learn the subject in a shallow manner (Ediger, 2014). Consequently, many social studies educators struggle to engage students in learning, as students seem to have a variety of interests and learning profiles (Gibson, 2012; Heafner, 2004; Schug, 1982).

The Statement of the Problem

A recent report of The National Association of Independent Schools Survey of Student Engagement (2014) revealed that 82 percent of 13,261 surveyed students from 51 member schools stated that they are bored every day in school, with 17 percent indicating that they are bored in every class. Students from both independent and public schools also reported that they were bored because the "material was not interesting" (p. 23). The surveyed students also identified the types of classroom activities that engaged them the most, including the following: Discussion, Debate, Group Projects, and Projects and Lessons Involving Technology. Group

Projects was also ranked by public school students as the most engaging, with 70 percent of the students responding positively (p. 11). The 2014 High School Engagement report confirms the relationship between teacher instructional practices and student engagement, and suggests that secondary school students can be involved in academic work if the material is interesting, relevant, involves technology and is academically challenging.

Scholarship on student engagement in the social studies classrooms indicate that students disengage and grow "bored" (Marks, 2000; Misco, 2014; Schug, 1982; Yazzie-Mintz, 2010; Zhao & Hoge, 2005) because the assignments lack authenticity and applicable content (Marks, 2000; Zhao & Hoge, 2005). To improve engagement, students want a stimulating social studies curriculum that is useful, challenging and fun to learn. They want teachers to use different instructional strategies, technologies, multimedia, (Russell & Waters, 2010), and to be given an opportunity to connect what they are learning in the classroom on a personal level and to life outside the classroom (Anderson & Cooke, 2014).

Also, influencing students' perception of social studies is how teachers teach the subject in secondary classrooms. Several scholars (Anderson & Cook, 2014; Bolinger & Warren, 2007) have found out that the need to cover social studies content assessed on standardized tests has forced teachers to adopt more teacher-centered instructional methods. For instance, Bolinger and Warren (2007) found that information on state tests allowed a broad-knowledge based curriculum with no depth of understanding. The teacher-centered approach which involves drilling, memorization, homework assigned from textbooks, lecturing, and regurgitating of facts and information (Bolinger & Warren, 2007; Ediger, 2003; Levstik, 2008; Russell & Waters, 2010; Winfield, 2008), does not allow students to learn social studies in an active and authentic way. Furthermore, Bolinger and Warren (2007), in discussing the methods of instructions used in

social studies classrooms, assert that the continuous use of these instructional methods does nothing to "encourage students to see history and social studies as investigative, open-ended, and research-based" (p. 70). The teacher-centered instructional approach makes it difficult for students to appreciate the importance of social studies, which leads to poor student engagement and learning outcomes (Doolittle & Hicks, 2003; Hendrix, 1999).

Engaging students involves providing learners with a variety of meaningful and challenging classroom instructions that will motivate them to express their talents and be successful academically. In evaluating student engagement in secondary social studies classrooms, the following questions must be taken into consideration: What instructional strategies can be employed to enhance student engagement in social studies classrooms? Can teachers use new and emerging GIS technologies to inspire students' participation and engagement in social studies classrooms?

To promote student learning involvement, then a focus on student engagement using geographic information system (GIS) should be explored. Using geographic information system (GIS) in the social studies classroom might help teachers to reignite their students' sense of curiosity and desire to learn. With the increased availability of computers, GIS technologies are beginning to gain more attention in elementary and secondary classrooms due to an increasing interest by teachers, awareness of technology by students, and the growing accessibility of handheld GIS enabled hardware (Shaunessy & Page, 2006).

There is a growing number of qualitative research studies conducted on student engagement in a variety of subject disciplines across the United States (Cooper, 1998; Heafner, 2004; Manigault, 2014). For example, Manigault (2014) used phenomenography to explore the relationship between student engagement and learning through observation of instructional

practices and interviews to offer a descriptive overview of the levels of engagement and their experiences in their social studies classes. Heafner (2004) used qualitative methods to provide detailed descriptions of technology application in a social studies classroom setting. The purpose of the study was to interpret and describe the phenomena and the meanings that students brought to the classrooms in relation to student engagement in the learning process using technology. A third example by White (2006) combined quantitative and phenomenographic research methods to examine educators' and students' conceptualizations of GIS as an instructional technology in K-12 education.

This present study concentrates on exploring how students perceive their engagement when they use GIS-story maps as a learning tool. As "a set of computer tools for analyzing spatial data" (Clarke, 2001, p. 33), GIS maps allows users to combine maps, data, and tables of information connected to different locations; therefore, users can access and share the variety of data on the map to collect, store, analyze, manipulate and understand patterns and spatial relationships. Some of the most promising applications that have evolved from these efforts are story maps, which combine interactive maps with stories to tell spatial narratives and digital stories (ESRI, 2012). Users can create maps to tell the story of a place by linking "interactive maps with other rich content text, photos, video, and audio" (Harder, 2015, p. 37).

Previous research findings on the history of GIS in K-12 education have been encouraging. For example, Tinker (1992) proposed using GIS in K-12 education because of the dynamic and interactive experience the maps offered to 4^{th}, 5^{th}, and 6^{th} -grade students when studying different aspects of the environment. Additionally, Audet and Abegg (1996) found that GIS contains certain pedagogical elements that enhance spatial skills and student learning, especially regarding students' problem-solving styles. The interactive and dynamic nature of the

maps, particularly the data related to geographic awareness and spatial relationships can be of great benefit to social studies teachers and students and can help them to better understand the world around them (Sinton & Bednarz, 2007).

Deficiencies in research about GIS in K-12 education revolve around 3 main concerns. First, there is the lack of effective empirical research investigating the benefits of geospatial technologies as teaching tools to encourage "large scale implementation" of GIS as an appropriate technology that can enhance student engagement (Baker et al, 2015; Bednarz, Heffron, & Huynh, 2013). Second, few qualitative studies have addressed the impact of GIS-enhanced method of instruction on student engagement. Most of the available studies and reports on the benefits of GIS applications in secondary social studies classrooms derived their data by using quantitative methods only (Aladag, 2010; Goldstein & Alibrandi, 2013; Kaya, 2011). Third, quantitative studies do not take into consideration the voiced opinions and expressions of the students regarding the benefits of GIS-enhanced instructions. Without qualitative information from students, it is difficult for educators to customize their instructional strategies to match the particular needs of the students. There is, therefore, a critical need to conduct qualitative studies using phenomenography that provide an avenue for students to describe the qualitatively different ways they understand their engagement in a GIS-enhanced social studies classroom.

This project intends to address some gaps in the literature by recognizing the need for research based on different types of methodologies that address classroom-based inquiry using GIS to improve learning of students. It also responds to the call for more research in the integration of geospatial technologies in k-12 classrooms that explores "the impact, affordance, and pedagogy of geospatial technologies and data" that can "fuel the transformation of theory into practice" (Doering & Veletsianos, 2008, p. 223). According to Baker et al., (2015),

"Aligning research with current and ongoing activities and policies will increase opportunities for scholars to engage in meaningful, authentic learning environment" (p. 119). Another purpose of the research is to investigate the benefits of GIS as a teaching tool, and to encourage "large scale implementation" of GIS as an appropriate technology that can enhance student involvement (Baker et al, 2015; Bednarz, Heffron, & Huynh, 2013). While Strachan (2014) conducted a study on teachers' perception of story maps as an instructional tool, unfortunately, no empirical study has been conducted on student perception of their engagement when story maps are used in a secondary social studies classroom.

This study will address the aforementioned gaps in the research by exploring the effectiveness of story maps from students' perspective. The study will also attempt to ascertain students' level of interest and engagement with instruction that allows them to apply their knowledge to real life experiences using 21st century skills; thus, the study will enable students determine if there is a connection between story maps and their lives. Finally, information learned from this study has the potential to inform curriculum specialists, school administrators, and educators in planning activities that will improve students' engagement and learning in secondary social studies classrooms.

The Purpose Statement

The goal of this phenomenographic study is to describe how eighth-grade students perceive their engagement with social studies when it is taught using story maps. The study also investigates how eighth-grade students perceive the relationship between story maps and their own life. Marton (1994) defines Phenomenography as the study of the various ways in which various phenomena in, and facets of, the world are experienced, theorized, understood, observed

and captured. The study explores the phenomenon of student engagement from the perspective of the student rather than what teachers think or observe in the classrooms. This research study is different from earlier studies because it takes into consideration the students' assessment of their engagement when they use story maps. The following research questions will guide the study.

Research Questions

1. How do eighth-grade students perceive their engagement with social studies when it is taught using story maps?
2. How do eighth-grade students perceive the relationship between GIS, story maps to their own life?

Significance of the Study

Addressing the intention of this study is significant in the following ways:

1. The inquiry-based and student-centered techniques introduced because of GIS application may help promote active engagement in learning activities. (Finn & Rock, 1997; Wang & Holcombe, 2010);
2. Using GIS may help students develop 21st century skills as outlined by the National Council for the Social Studies (NCSS) position statement on teaching and learning social studies (NCSS, 2016), the International Society for Technology in Education (ISTE), and the national geography and social studies standards (Heffron & Downs, 2012; ISTE, 2007; NCSS, 2013).

3. Empirical results from this study might encourage secondary teachers to incorporate GIS-story maps as a tool to improve the way teachers teach, and the way students learn; and finally,
4. This study will enable students to express their views as co-researchers. It gives them an opportunity to share their knowledge and experiences to improve the educational experiences in social studies classrooms.

Limitations

Limitations of this proposed study will evolve from four main areas: The chosen methodology, the sample size, the generalizability and reliability of findings, and the subjectivity of the researcher.

Qualitative studies are limited by problems connected with reliability and validity. Simon and Goes (2013), citing Wiersma (2000) noted that research conducted in a natural setting is "extremely difficult to replicate" (p. 1). Phenomenography, for example, comes with limitations relating to "internal consistency" that includes the design, conduct, and analysis of the interview data (Sin, 2010, p. 9). Additionally, this research is limited by the subjectivity of the researcher because of the influence of the personal biases and idiosyncrasies that are difficult to avoid (Miles, Huberman, & Saldana, 2014). To minimize threats because of the influence of personal biases and internal consistency, the researcher will keep a reflective journal to create transparency and help to address the issue of personal bias. A reflective journal will facilitate reflexivity, and help to clarify personal assumption of goals (Ortlipp, 2008).

Definition of Terms

The following words about the discussion of student engagement will be used for the purpose of this study and are, therefore, defined.

1. *College, Career, and Civic Life (C3) Framework for Social Studies State Standards (C3 Framework):* "Social Studies State Standards developed for states to upgrade their state social studies standards" (C3 Framework for Social Studies State Standards, 2013).
2. *Cognitive/Intellectual/Academic Engagement*: Is the "students' effort, investment, and strategies for learning," or "engagement of the mind." (Yazzie-Mintz, 2009, p. 3)
3. *Social Studies:* "is the integrated study of the social sciences and humanities to promote civic competence (Schneider, 1994, p. 24). The researcher in this study used the term social studies to include: history, geography, civics, and economics.
4. *Social/Behavioral/Participatory Engagement*: Can be described as "students' actions in extracurricular, social, and non-academic school activities, including interactions with their fellow students as well as with other members of the school community" (Yazzie-Mintz, 2009, p. 3).
5. *Psychological/ Emotional Engagement* "emphasizes students' feelings of connection to their school. This dimension can be interpreted as engagement of the heart." (Yazzie-Mintz, 2009, p. 3).

Summary

The concept of student engagement is an important factor in school success and academic achievement (Appleton, Christenson & Furlong, 2008; Levin, 2010; Newman, 1992; Parsons & Taylor, 2011). The learning experiences of students can lead to student engagement or

disengagement (Bolinger & Warren, 2007; Ediger, 2003; Levstik, 2008; Russell & Waters, 2010; Winfield, 2008). Therefore, to understand how students go about their learning, educators must listen to students' voice and how they perceive their learning experiences. Student learning goes beyond what they absorb in the classroom. Therefore, to make learning applicable to life outside the classroom, teachers have to create a student-centered learning environment that makes social studies interesting using different strategies, technologies, multimedia, to make learning meaningful, challenging, and relevant to life outside the classroom (Anderson & Cooke, 2014; Russell & Waters, 2010). Therefore, it is the position of this research that incorporating a new and emerging technology like story maps is an essential step towards understanding the impact of how teachers teach, how students learn, and what happens in classrooms.

Organization of Study

The study will be divided into chapters two, three, four, and five. Chapter two will provide a literature review on the definition of social studies, the purpose and goals of social studies, and students' perception of social studies. Even though chapter one provided a brief definition of student engagement and GIS, chapter two will provide a detailed discussion of literature defining student engagement, facilitators of engagement, and the prospects and challenges of using GIS in secondary education. Chapter 3 discusses the theoretical (Constructivism, the Theory of Engagement, Culturally Responsive Teaching, Schema, and Critical Pedagogy) and conceptual frameworks (C3 inquiry arc). This chapter also describes the methodology (phenomenography), the participants, and the data collection procedure. The findings will be discussed in chapter four, while chapter five the final chapter will summarize the

results of this investigation, assesses their implications, and makes recommendations for further research.

CHAPTER II

LITERATURE REVIEW

This chapter reviews the relevant literature on student engagement with the use of geospatial technologies involving GIS and story maps. Previous studies conducted on student engagement indicate a positive correlation between student engagement and academic achievement. Existing scholarship also demonstrates that a positive connection exists between student involvement and the use of instructional technology such as GIS.

The first segment of this chapter presents a discussion of the definition, goals, and purpose of social studies education, and reviews the literature addressing students' perceptions of social studies in K-12 classrooms. The second section presents a historical overview of student engagement from 1984 to 2014, definition, and facilitators of student engagement in social studies classrooms, and the use of instructional technology by social studies educators. The third part of the chapter centers on the existing scholarship covering geospatial technology, GIS, and story maps. Section three also addresses the emergence of GIS, its history in secondary social studies education, and its role in promoting educational reforms. It then explores the effects that GIS has on student engagement and learning along with the benefits and challenges of GIS applications in social studies classrooms. Finally, a review of previous dissertation studies that explored different GIS devices in social studies classrooms is included for further reference. This survey of the relevant literature reveals that there is a need for more qualitative studies that take

students' experiences, opinions, and perception into consideration in the use of GIS and story maps in social studies classrooms.

The Discipline of Social Studies

Definition of Social Studies

Since its introduction as a school subject, social studies continues to be involved in intellectual disputes over its meaning, content, and pedagogy (Ross, 2001). Defining social studies is challenging and complicated because of its "founding history, conceptual ideas, and sharp ideological differences" (Nelson, 2001, p. 16). Stanley and Nelson (1994) defined it as the "the study of all human enterprise over time and space" (as cited in Ross, 2001, p. 19). Other researchers have described it as a combination of various subjects in the humanities or as a general name for content that can focus on history, geography, or civics (Parker, 2010; Zevin, 2015). A comprehensive definition of social studies was adopted by the Board of Directors of the National Council of the Social Studies (NCSS) in 1992.

> Social studies is the integrated study of the social sciences and humanities to promote civic competence. Within the school program, social studies provide coordinated, systematic study drawing upon such disciplines as anthropology, archaeology, economics, geography, history, law, philosophy, political science, psychology, religion, and sociology, as well as appropriate content from the humanities, mathematics, and natural sciences (p. 1).

Social studies is distinct from other subjects in the humanities because of the knowledge and skills students derive from it. For example, while history looks and interprets past and present events in different societies, social studies try to determine how the society works. It also investigates the behavior of people in these societies by looking at their cultures, institutions, government, and global relationships. In other words, as students study the society, the people, and examines their past, they develop the skills to help them appreciate diversity, become engaged citizens, and active agents of change.

The Evolution of Social Studies as a Discipline

The progressive education movement of the 20th century ushered in the modern social studies curriculum (Cremin, 1961). At that time, social studies program of study was made up of two distinct subject areas with a primary emphasis on history. The current social studies began with the 1916 (Nelson, 1994) report that established social studies as the name of the content area and presented a scope and sequence that is still in use today (Ross, 2001). The major aim of the curriculum was the cultivation of good citizenship (Lybarger, 1983). A comprehensive inception of social studies, however, came into existence with the emergence of the National Council for the Social Studies in 1921 (Smith, Palmer, & Correia, 1995). Since the beginning of social studies as an academic discipline, it has gone through intellectual debates over its purpose, content, and pedagogy (Ross, 2001). Consequently, the contemporary social studies curriculum has become a point of contention between those who support a history-centered curriculum synonymous with teaching history and those who are in support of an interdisciplinary approach that brings together a variety of disciplines to teach social studies for civic engagement.

Purpose of Social Studies Education

Research indicates a disagreement among scholars on the objective and purpose of social studies education. According to NCSS, the principal purpose of social studies is to give students the knowledge and skills to make decisions that will help them become efficient and productive citizens of a diverse and dynamic society (Schneider, 1994).

In social studies, students learn how the government and society function together in creating a synergistic democratic process. Additionally, students learn to use the knowledge of

their community, along with the skills of "data collection and analysis, collaboration, decision-making, and problem-solving" (Schneider, 1994, p. 1) to make informed decisions and actions. Social studies education does not just teach and encourage students to learn about government; it also invites students to be active, engaged and responsible citizens, thereby maintaining the democratic process. (Nelson, 2001; Parker, 2010).

Some scholars view social studies education as declining (Finn, 2003; Misco, 2014). For example, Misco (2014) asserts that, in the midst of a rapidly changing and connected world, the social studies curriculum, suffers from what he refers to as "a distorted rendering of purpose and mission" (p. 241). Social studies education still maintains the nineteenth-century structure focused on teaching history, geography, civics, and economics as "disconnected and irrelevant content with standardized measures of knowledge" (p. 241). Rather than providing students with the knowledge and skills to engage in decision making, social studies education delivers unclear and unnecessary content, irrespective of its role of providing citizenship education. The social studies curriculum needs to reflect the issues and problems relevant to the lives of the students. Despite the lingering debate on how scholars perceive social studies education differently, it is noteworthy to mention that when it comes to defining the role of social studies in secondary schools, most social studies researchers agree that the preservation and improvement of democratic living is one of the primary purposes of social studies education.

Secondary' Students' Perception of Social Studies

Instruction in the social studies classroom tends to be dominated by the teacher-centered approach that involves lectures, textbooks, and worksheets. The scan of the literature seems to suggest that students favor more student-centered learning activities (Wanzek, Kent & Stillman-

Spisak, 2015). For example, Russell and Water's (2010), study, involving 480 middle school students, discovered that "students do like to learn social studies in multiple ways" (p. 11). Most of the students in the study liked to learn social studies using technology, cooperative learning activities, graphic organizers and foldables. A similar study conducted by Beck, Buehl, and Barber (2015) revealed students' perception pf their reading, learning, and engagement in social studies. Results from the study supported the use of different instructional methods because "student engagement varied across various activities" (p. 14). This results stems from how the different learning profiles of learners can impact student involvement in different learning activities.

Research has shown that teachers' instructional practices can negatively affect how students view social studies. For instance, according to a study carried out by Alazzi and Chiodo (2004), teachers "could either make students love social studies or hate it" (p. 6). Their research revealed that both middle and high school students believe that active engagement, teacher disposition, and the relevance of the subject matter led to positive images for social studies. On the other hand, the study also revealed that most students did not have a negative perception of social studies. Their results varied from other studies which found that students had a negative attitude toward social studies.

Student Engagement

Defining Student Engagement

Defining student engagement is difficult and complicated, and many scholars have disagreed over the different dimensions. Skinner and Belmont (1993) have identified two levels of engagement: behavioral and emotional. Fredricks, Blumenfeld and Paris (2004) identified

three types of engagement: behavioral, emotional, and cognitive. Harris (2008) also expressed support for the behavioral, cognitive, and psychological nature of engagement and Davis and McPartland (2012) argue for three interrelated magnitudes that include behavioral, cognitive, and relational engagement. While behavioral engagement addresses the impact of student behavior on academic activities, cognitive engagement deals with the quality and psychological engagement that allow students to make an investment in learning dedicated to positive academic outcomes. Emotional and relational engagement looks at the sense of belongingness and quality of relationships, boredom, interests, and satisfaction within the classroom and school environment (Davis, Summers, & Miller, 2012; Harris, 2008).

Given the multidimensional nature of student engagement, the answer to engaging learners includes designing academic tasks that present meaningful, relevant, and authentic challenges. Also, teachers should plan for lessons that offer "extrinsic rewards provide for intrinsic interests, permit a sense of student ownership, reflect aspects of work beyond school, and involve some fun" (Newmann, 1992, p. 28).

Historical Overview of Student Engagement

Following the presentation of "A Nation at Risk" in the 1980s, school systems in the United States have been faced with public calls for reforms (Axelton & Flick, 2011; Cuban, 1990). Critics of the American K-12 educational system exposed what they believed were problems with the system, such as the neglect of problem-solving skills, weak curricula, high drop-out rates, and low level of academic achievements, based on national and international test scores (Gardner, 1983). Studies in student engagement began with the Alexander Astin's

involvement study in the 1980s (Astin, 1984; Axelton & Flick, 2011; Trowler, 2010). Astin's study described and introduced five major principles of learning involvement as follows:

1. Involvement requires investment of physical and psychological energy.
2. Involvement occurs along a continuum: different individuals will invest to different degrees.
3. Involvement has both quantitative (amount of time/energy spent) and qualitative (quality of effort) components.
4. The amount of learning and personal development is proportional to the quantity and quality of student involvement.
5. Promotion of student involvement is the yardstick for evaluating the effectiveness of educational practices and policies (p. 519).

Another study by Chickering and Gamson (1987) presented seven research-based principles that improve undergraduate education. They include: (1) Student-faculty contact; (2) student collaboration; (3) active learning; (4) feedback; (5) time on task; (6) high expectation, and (7) diversity of learning styles (p. 3). The study showed that students are engaged in learning when teachers create an environment that provides a learning experience that encourages collaboration, curiosity, finding answers to specific inquiries, and applying new-found discoveries and knowledge in a variety of ways. Other studies adopted the seven principles outlined in the study conducted by Chickering and Gamson as a foundation for similar assessment and research instruments. For instance, the National Survey of Student Engagement (NSSE) was developed to assess the level of student involvement in learning activities. While most studies have addressed problems relating to school satisfaction, academic achievement, and school dropout rates, the literature has, however, established a connection between student

involvement and successful student development (Astin, 1984; Chickering & Gamson, 1987; Kuh, 2001; Tinto, 1987).

Student Engagement Research in K-12

Student engagement at the K-12 level began to appear in the 1980s. These studies began as a key to addressing student boredom, alienation, high school dropout rates, and poor students achievement (Appleton, Christenson, & Furlong, 2008; Finn & Zimmer, 2012; Fredricks, Blumenfeld, & Paris, 2004; Marks, 2000). In the 1990s, an educational reform movement influenced by the need to find the reasons for students' poor academic performances brought a focus on student engagement. Under the umbrella of the National Center for Effective Secondary Schools, located at the University of Wisconsin-Madison, researchers sought to examine achievement in American secondary schools and the reasons for students' low academic performances. The study also addressed how and why different approaches to instruction, curriculum, and school policies can improve student achievement by improving engagement. The study by (Newmann, 1992) established the following issues regarding student engagement:

- The problem faced by both teachers and students is not performance but student disengagement.
- When students are disengaged, they interrupt and skip class. They fail to complete assignments.
- Disengaged students behave well in school, but they are not enthusiastic and do not master their content. On the other hand, engaged students are "psychologically invested" in their learning. They are proud of their work and connect their learning to real-life situations.

- The challenge for teachers is to learn how to engage students (p. 12).

In 2003, the High School Survey of Student Engagement (HSSSE) and the newly released Middle Grades Survey of Student Engagement (MGSSE) built upon the framework established by the National Survey of Student Engagement (NSSE). The survey is a student focused study that investigates what students think about their school work. The principal aims of the study are to provide data on student engagement at individual schools, help educators use the results of the survey to improve their practices and student engagement, and to conduct research on ways to improve student engagement (Yazzie-Mintz, 2009). Both the high and middle school engagement surveys conducted over the years suggest that engagement also includes listening to the voices of students; thus, students want to hear more than just the teacher. They want their own, unique voice to be heard. When students feel respected and "heard" they become vested in the conversation, which naturally creates an "engaged environment. Students, according to Yazzie-Mintz (2009) want "to be heard, to be listened to, and to have their ideas turned into action" (p. 24). In fact, the high school engagement surveys conducted over the years reveal that schools need to create an engaging learning environment that recognizes the opinions of students. The high school engagement surveys also show that students are less engaged as they move through their high school years, and they want to be involved in educational activities that are meaningful and challenging. (HSSSE, 2006; HSSSE, 2007 & 2008; HSSSE, 2014).

The main goal of education and schooling is to provide students with the relevant skills to be successful in the real world. Rather than blame students for poor academic performance, the surveys addressed the issue of student engagement from the perspective of creating the necessary conditions for involvement, engagement, and achievement to take place. These conditions involve providing challenging curricula activities, considering different approaches to

instruction, recognizing the opinions of students, and providing students with relevant twenty-first-century skills.

What is Student Engagement?

The word engagement implies different things to different people; however, Webster's New College Dictionary defines engagement as the "state of being in gear" or, "something that engages, promise, and pledge. On the other hand, to engage, means, "voluntarily committed or personally involved, and attached to" (p. 471). Engagement allows an individual to pay attention, to be committed, or to participate in something. In other words, people will not invest their personal time and attention to an activity unless their emotionally invested in it.

Some scholars have attempted to describe engagement as participating in tasks that are "interesting, challenging, and worthwhile" (Brophy, Rohrkemper, Rashid, & Goldberger, 1983, p. 2). Other researchers have also looked at engagement as a psychological process that can be related to time, focus, and efforts expended by students in the learning experience. For instance, psychological engagement is involved when students have a positive attitude towards school, teachers, their peers (Harris, 2008; Newmann, 1992, Parsons & Taylor, 2011; Reeve, 2012), and "implies both the affective and behavioral participation in the learning experience" (Marks, 2000, p. 155). In addition to emotional involvement, these definitions also cover more specific indicators of engagement such as the degree to which students participate in academic and nonacademic activities (Audas & Willms, 2001; Finn & Rock, 1997). It also includes a continued behavioral involvement and positive emotional tone (Skinner & Belmont, 1993), motivation, sense of belonging, and school climate (Appleton, Christenson & Furlong, 2008; Fredricks, Blumenfeld & Paris, 2004; Yazzie-Mintz, 2007).

The reference to the commitment or investment in learning in the definitions of student engagement reviewed above emphasizes a universal acknowledgment of the word engagement (Lamborn, Newmann, & Wehlage, 1992; Marks, 2000). These definitions imply that there may be different levels and degrees of commitment and investment in learning activities (Fredricks at al., 2004). According to Fredricks et al., while behavioral engagement involves sitting quietly, following rules, and participating in school activities, emotional engagement allows students to like or identify with an institution or a learning activity. Cognitive engagement allows students to move from lower level learning to higher order learning that demonstrates their understanding and application of content and skills.

Some research studies have argued in support of engagement as a multidimensional construct that combines behavioral, cognitive, and psychological dimensions in a meaningful way. For example, Fredricks, Blumenfeld, and Paris (2004) advocate for combining behavioral, psychological, and cognitive dimensions of engagement as a "metaconstruct". They contend that the combination of behavior, emotion, and cognition "may provide a richer characterization of children" (p. 61) than when addressed as three separate components. According to the researchers, addressing the three dimensions of engagement independently does not account for the students' behavior, emotion, and cognition. These dimensions are connected to the individual and are difficult when studied in isolation. Thus, the three constructs provide a strong case for exploring the causes and effects of behavior, emotion, and cognition in learning. For this present study, in looking at student engagement in social studies classrooms, the desired outcome is the ability of students to understand and apply what they are learning in a variety of situations. Understanding and application, with respect to the definitions of the different types of engagement discussed earlier, constitute cognitive engagement. However, the achievement of

cognitive engagement requires students to be both behaviorally and psychologically engaged. The application of the three types of engagement demonstrates how the interrelationships between the three forms of engagement can be used to promote students' academic achievement (Fredricks et al., 2004; Yazzie-Mintz, 2010).

Many academic studies recognize that all three dimensions are critical to student learning and engagement, although researchers have not agreed on which aspect is most important to learning. Most studies have included behavioral and emotional components. For example, a study conducted by Lee (2014) found that "students with higher levels of emotional engagement also showed higher levels of behavioral engagement" (p. 177), which subsequently led to higher reading scores. Scholars also tend to agree that there is a strong link between cognitive engagement and learning. Davis, Summers, and Miller (2012) note the importance of effort in both cognitive and behavioral dimensions of engagement. While cognitive engagement addresses the degree or quality of participation, effort denotes the quantity of their engagement. Cognitive engagement is significant because of the distinction between the effort to complete the task and the effort that is focused on understanding and mastering the task.

Nystrand and Gamoran (1991) tried to distinguish between procedural and sustained substantive engagement in academic tasks. They use "procedural engagement" to describe students' who follow directions and complete their class assignments and employ "substantive engagement" to describe the general classroom experiences and students' interactions with their peers and teachers. Their distinction helped to clarify that student engagement did not only depend on students' participation in their assignments but the quality of teaching and class assignments they invest their time and effort to complete. They argue that students' mastery and engagement depends on their "psychological investment" in learning activities and that if

students' spend their time working on regurgitating information, without any attention to content, then their engagement and mastery will be restricted to a set of processes. They note that "schoolwork and class activities will foster substantive student engagement only if these activities require more than a mastery of procedures" (p. 3).

Finn and Zimmer (2012) confirmed the claim that engagement is necessary for learning to occur, and that engagement consists of multifaceted elements with academic, social, cognitive, and affective (feelings) components. Each of the components plays a role in student academic achievement, and if any part is weak or insufficient, it can lead to academic or behavior problems. They further stated that engagement actions could be influenced to improve the educational performance of students who are at risk of failing or dropping out of school. These engagement behaviors of students matter in learning environments because they play an essential role in promoting learning outcomes, and can be improved by teacher practices.

In contrast to the multidimensional description of engagement, other scholars have addressed the need for a more limited definition of engagement. Skinner and Pitzer (2012) see engagement as having both a behavioral, emotional, and cognitive component structured around themes, which they refer to as the "dynamics of motivational development" (p. 24). They describe engagement as the element of action in the model of motivational development that energizes, directs, or sustains action, observable qualities when students work on academic tasks. According to Skinner and Pitzer (2012), attention, effort, and interests are signs of energy that are the visible demonstration of purpose, and the determination and persistence are evidence of durability. In this case, motivation can be regarded as the underlying source of energy, use, and durability, while engagement is the visible manifestation of motivation. In other words, for students to be engaged in classroom learning activities, they must be motivated either

intrinsically or extrinsically. Skinner and Pitzer also made a distinction between indicators and facilitators of engagement. Indicators of engagement, they said, are visible signs such as students' on-task behavior. While engagement facilitators are external factors that have the potential to influence student engagement, like personal and social factors.

The definitions of engagement discussed above have shown the need for a consistent definition of student engagement. Axelson and Flick (2010) noted the fundamental conflict between the use of student engagement as a system of accountability that provides information on student involvement in learning activities, and as a variable for understanding, explaining, and predicting student behaviors in learning environments (p. 41). Using an expansive definition of student engagement works well with accountability because both the student and institutional variable merge into a single index of engagement. Consequently, when it comes to research on student engagement, the absence of an expansive definition of student engagement makes it difficult to study the various types of engagement and how they connect to learning task and environment. Furthermore, it also makes it difficult to "measure specific instances of engagement and consequently, precludes study of the factors that inhibit and enhance it" (p. 41).

Facilitators of Student Engagement

So, what engages students in learning activities? Students are engaged when the following facilitators of engagement are utilized by educators in social studies classrooms: (1) teacher instructional practice and pedagogy, (2) authentic and relevant learning activities, (3) inquiry learning, (4) collaboration and relatedness, and (5) technology integration. The facilitators of engagement used in classroom learning situations will reduce the feeling of disengagement experienced by some students.

Instructional Practice and Pedagogy

Teachers' instructional practice and pedagogy can increase or decrease student engagement. For example, an exploratory study by Ishak and Amjah (2015) looked at teachers' perceptions of student engagement, and the factors that affected student engagement from the perspective of learners in a year seven (sixth grade) social studies classroom. Their study highlighted the following points. First is the need for teachers to plan meaningful learning activities that encourage student engagement. These learning activities must provide opportunities for collaboration, inquiry, knowledge application, the use of technology, and a more constructive way of teaching. Second, student engagement does not only consist of coming to school and making the grades but "a positive process in learning" that utilizes the affective and cognitive domains to determine the level of learning engagement in students (p. 438).

Teachers also must have the ability to design lessons that can "encourage or discourage student engagement" (Parsons, Nuland, and Parsons, 2014, p. 25). For instance, Babb, Saar, Marcotte, Brandon, and Frieson (2013) discussed the importance of intentionally designing a learning environment to engage students. When teachers plan their instructional activities, it is it is important to select different tasks, consider different learning styles, and plan for lessons that awaken the curiosity within the students to influence student engagement, motivation, and comprehension. When educators design and provide an intellectually engaging environment, the effect is "a deep, personal commitment on the part of the students to explore and investigate ideas, issues, problems or questions that have personal relevance" (p. 47).

The instructional environment and conditions put in place by teachers may promote excitement, stimulation, and engagement in the learning process. Educators can create an

engaging environment by employing student-centered strategies and a 21st century approach to teaching that connects content to skills and provides authentic learning activities (Ishak & Amjah, 2015; Parsons et al., 2014; Reeve, 2012). Teachers also need to embrace a teaching model that involves inquiry and collaboration and must move away from the teacher-centered didactic role to a more constructive way of instruction. Constructivist instruction alters the position of the teacher from an authoritative source of knowledge to a learning facilitator who provides the tools that will help students to construct their knowledge (Good & Brophy, 2003). It also provides ways for teachers to address the broad range of ability levels and learning styles of their students. Each of the roles performed by the teacher provides techniques to enhance student engagement, cooperation, critical thinking, inquiry, and participation (Bowen, 2003; Voke, 2002; Zevin, 2015).

Authentic and Relevant Learning Activities

Students are engaged when lessons are more genuine and student-centered (Shernoff, Csikszentmihalyi, Schneider, & Shernoff, 2003). The search of the literature reveals many examples (Newmann, 2000; Rotterdam & Willingham, 2010; Scheurman & Newmann, 1998) of using authentic assessment in teaching and increasing student engagement. At the same time, the new push for educational improvement places more emphasis on helping students develop 21st century skills by teaching the disciplinary content through meaningful activities (Rotherham & Willingham, 2010). Authentic learning requires high-level cognitive performance, in-depth understanding instead of shallow memorizing and recall of knowledge (Newmann, 2000). For illustration, Scheurman and Newmann (1988) established three criteria for authentic intellectual

achievement in social studies classrooms that involve the application of knowledge to questions and issues within a particular domain:

1. Construction of knowledge: Building upon prior knowledge involving various levels of inquiry across each of the social studies discipline.
2. Disciplined Inquiry: In-depth understanding of intricate problems and expressing understanding in ways acceptable to experts in the field.
3. Value beyond school: Providing creative and useful value beyond the mere acquisition of knowledge in social studies (pp. 1-3).

Students are inclined to engage in learning activities if they see what they are learning as relevant to their lives (Mark, 2000; Marzano & Pickering, 2013; Newmann, 1992; Oblinger & Oblinger, 2005; Parsons et al., 2014; Voke, 2002; Yazzie-Mintz, 2006). The application of lessons to real life contexts engages students and incorporates a sense of purpose (Bowen, 2003; Harris, 2008). Relevant learning activities also provide an opportunity for students to explore real life problems and concerns that are not only applicable to the subject but to the lives of the student outside of the classroom. On the relevance of learning activities, Babb et al., (2013) asserts that "the work that students undertake is authentic in that it mirrors the ways of thinking and acting reflective of practitioners in the field" (p. 47). Therefore, students' learning and engagement occur when teachers provide authentic learning pursuits that "require them to analyze, interpret, and negotiate the meaning of information" (Scheurman & Newmann, 1998, p.3). Newmann (2000) further suggests that merging authentic intellectual work with basic knowledge and skills will allow students to learn in "ways that promote the production of authentic intellectual work and move beyond them to more complex intellectual challenges" (p. 3).

Inquiry Learning

Students are engaged when they learn subjects through investigation and exploration. For knowledge development to be compelling, learning should be based on a "foundation of disciplined inquiry" (Scheurman & Newmann, 1998, p. 2). Inquiry-based learning is an active learning process in which students learn through formulating questions, investigating widely, and building new understanding, meaning, and knowledge (Alberta Learning, 2004). Wilms, Frieson, and Milton (2009) found that for teaching to be effective, it has to begin "with thoughtful, intentional designs for learning designs that deepen understanding and open the disciplines to genuine inquiry" (p. 33). Inquiry learning is a critical instructional approach that corresponds with the new career and college readiness standards (C3 Framework, 2013; Heffron & Downs, 2012). Students want to be supported to explore and provide responses to questions. They also need to learn how to defend an opinion, inform a decision and make their conclusions (Alberta Learning, 2004; Oblinger & Oblinger, 2005). As Wilms et al. argues, for teachers to engage students, they must create a learning environment that fosters "questions, extension, investigation and exploration" (p. 34). These findings serve as a reminder for teachers that students are engaged in learning when it is more purposeful and involves exploration and application of learning.

Collaboration and Relatedness

Research shows that students are effectively engaged when learning occurs in a social environment (Skinner & Belmont, 1993). According to educational researchers, students are driven by the need to belong to a community of learners (Bedell, 2012; Oblinger & Oblinger,

2005; Voke, 2002). Therefore, construction of knowledge is through collaborative activities that allow students to share their expertise with each other. When students collaborate, they learn to take turns, listen to each other, disagree constructively, give feedback, reach an agreement and take decisions as a group (Kauchak & Eggen, 2007). Teachers can encourage collaboration using group work and individual interaction (Oblinger & Oblinger, 2005). When students work in small cooperative learning groups, everyone can participate in a clearly defined role or task. In the same way, collaborative activities should also go beyond the classroom and school environment. In the words of Lamborn, Newmann, and Wehlage (1992), "achievements outside school often depend on the opportunity to ask questions of, to receive feedback from, and to count on the help of others, including peers and authorities" (p. 27).Teachers should provide students with the opportunity to talk to authorities in the field (historians, geographers, economists) and to cultivate a meaningful relationship with them. Facilitating such collaborative relationships requires teachers to involve students in active, project-based, collaborative inquiry, which fosters cooperation and improve social and interpersonal skills. Thus, students begin to learn the content through dialogue and teamwork.

As noted by Johnson (2008), "collaborative learning may increase the interests and enjoyment students experience in other instructional formats" (p. 82). Using collaborative learning activities is considered necessary because, during adolescence, students rely on people beyond their immediate family for support. Teachers can meet the needs of the students by providing them with more opportunities for interaction. The chances to interact, collaborate, share opinions, and demonstrate their independence will likely lead to more student engagement in academic activities. The sense of relatedness between the student and the teacher may also

correlate with the motivation to learn Students who experience a positive relationship with their teachers are less likely to drop out of school (Bedell, 2012; Skinner & Belmont, 2003).

Technology Integration

Learning 21st century skills remains an educational goal across the nation. One of the most important facilitators of engagement is technology use and application. Instructional technologies have the potential to enable the growth of critical thinking and communication skills. They provide students with the opportunity to practice using practical tools to expand their horizons and afford them the chance to be part of a connected world (Whitworth & Berson, 2002). Most students today have access to various types of technology and are very comfortable using them. Technology serves as a useful tool to augment teaching and make it more engaging, stimulating, pleasurable and interactive (Babb et al., 2013; Bowen, 2002; Cemalettin, 2006; Heafner, 2004; Ishak & Amjah, 2015, Oblinger & Oblinger, 2005).

Social Studies and Student Engagement

Teaching Social Studies

Investigations of teaching in social studies classrooms within the last decades have shown that learning activities tend to be a recall of information rather than activities that involve them in disciplined inquiry, application of knowledge, problem-solving and critical thinking (Barton, & Levstik, 2010; King, Newmann, & Carmichael, 2010). Despite the heavy emphasis placed on student-centered methods, the common pattern in most social studies classroom is one that relies on the teacher and the textbook as information sources for assignments and discussions (Schug, 2003). To understand teaching methods practiced in social studies classrooms, Bollinger and

Warren (2007) conducted a survey of 420 elementary and secondary school teachers. Results of the investigation showed that both elementary and secondary social studies teachers used passive teaching methods more frequently than active and authentic methods. For example, among the secondary teachers, giving lectures was the preferred method with 63 percent listing it as the most practical strategy. The authors concluded that the teachers' preference for a type of instructional strategy might be due to the standardized measures of knowledge within social studies instruction.

In another study, Byford (2002) interviewed 48 middle and high school students in 8th and 11th grades. The researcher found that students want social studies teachers to vary their instructional strategies. Students in the study revealed that most social studies teachers used the textbook and the lecture method as the primary method of teaching. They generally placed limited emphasis on alternative assessments, and the students were expected to memorize and regurgitate information. According to one of the students interviewed during the study,

> Teachers who always use lecture or textbook seem to bore me. Me and my friends seem to "zone out" because often the teacher randomly goes on and on, so you either fall asleep, or flip pages to keep yourself awake. When a teacher lectures or always uses the text book, you don't get to work with others as much as ask questions" (pp. 52-53).

In other words, the over reliance on both the textbook and lecture method prevents learning through collaboration with peers, and through the process of inquiry. This finding is quite interesting, particularly with regards to the National Council for the Social Studies (NCSS, 2013) framework for social studies state standards (C3), and the National Geography Standards (Heffron & Downs, 2012) that places emphasis on inquiry learning. In sum, results from this study indicate that students are better engaged in their social studies classes when they are actively involved in the learning process. Giving the emphasis on teaching a relevant social studies curriculum, social studies educators should provide students with different learning

methodologies through direct instruction, reading to find out relevant information, allowing them to ask questions, problem solve, and use "higher order thinking skills such as analysis, synthesis, and evaluation" (pp. 56-57).

Teaching with Instructional Technology in Social Studies Classrooms

Instructional technology refers to technology designed to improve the value and proficiency of instruction and learning by utilizing an amalgamation of human and nonhuman sources (Reiser, 2001). Research on the use of instructional technology has covered a broad range of interests. Some studies have addressed the promises and challenges of technology integration into American public schools. Others have explored changing teacher confidence towards classroom technology integration. Recent studies have looked at different ways that instructional technologies can be used to promote student engagement and motivation, inquiry learning, and the creation of a student-centered constructivist learning environment in social studies classrooms. Using technologies, students can construct knowledge via inquiry using instructional technologies such as the Internet, computers, mobile devices, and different handheld GIS devices (NCSS, 2013).

The role of instructional technology is improving as educators look to technology as a tool to achieve goals and promote a meaningful social studies curriculum. (Berson & Balyta, 2004; Rose & Fernlund, 1997). For this reason, the National Council for the Social Studies (NCSS) continues to support the use of technologies in teaching and learning (NCSS, 2013). Previous research also supports the use of various types of instructional technologies in secondary social studies classrooms (Bennett, 2005; Berson & Balyta, 2004; Heafner, 2004). Many researchers have argued for employing instructional technologies because of its impact on

promoting student engagement. Additionally, technology use in social studies classrooms promotes excitement, motivation, inquiry, and the growth of critical thinking and communication skills (Whitwort & Berson, 2002; Wilson, Wright, Inman, & Matherson, 2011).

Unfortunately, despite the identified advantages that derive from using instructional technologies, a review of the literature indicates that technology has done little to change how social studies teachers deliver instructions (Berson & Balyta, 2004; Doolittle & Hicks, 2006). As per Shriner, Clark, Nail, Schlee, and Libler (2010), social studies teachers when compared to other content area teachers, "have been marked by a great deficiency in terms of their use of innovative methods made possible by technology" (p. 37). Although instructional technologies have enabled new forms of instructions in social studies classroom, studies reveal that teachers are still not comfortable with using computer-based instructional strategies.

Geospatial Technology, GIS, and Story Maps

Geospatial Technologies: What are they?

Geospatial technologies are interactive mapping technologies that allow users to "view and examine the world through multiple layering of data within a spatial environment" (Doering & Veletsianos, 2008, p. 217). Geospatial technologies are becoming readily available and apply to 21st century living and learning. When used in fields relating to science, social science, health, business and engineering disciplines, geospatial technologies promote spatial thinking skills that uses the properties of space to "solve problems through managing, transforming, and analyzing data" (Downs & DeSouza, 2006, p. 5).The four core geospatial technologies are remote sensing (RS), global positioning systems (GPS), digital globes, and geographic information system (GIS).

What is a Geographic Information System (GIS)?

A geographic information system is an integrated collection of software designed to query, question, analyze and interpret data to understand relationships, patterns, and trends (ESRI, 2016). Burrough (1986) defined GIS as a "powerful set of tools for storing, and retrieving at will, transforming and displaying spatial data from the real world for a particular set of purposes" (p. 6). There are some common themes in the two definitions provided. These items include data, spatial, retrieving, and analyzing; Thus, GIS is essentially a set of computer tools that has the power to combine interactive maps with tables and geographic data to provide information on different locations (Goodchild, 2000). Sinton and Lund (2007) claim that, GIS as a teaching tool in any social studies classroom will enable students to add context to information they see on maps by using data and facts from the different layers of information found on the maps.

GIS: A Brief History

The history of GIS began in 1950 with the publication of the *Town and Country* textbook in Britain. Included in the issuance were various data themes made up of "land elevation, surface geology, hydrology, and farmland" merged into a single map of area characteristics (Clarke, 2001, p.10). The modern overlay techniques common in today's GIS applications was invented in 1950, and later in 1962 (Clark, 2001), when researchers at the Harvard Laboratory for Computing Graphics began an early attempt at automated mapping that led to the introduction of computing technologies in mapping and cartography. Baker (2000) explains that the efforts from the researchers at the Harvard laboratory resulted in the development of a new application known

as GRID, and from GRID the modern GIS technology such as ESRI's ArcInfo, Hexagon Geospatial, and ERDAS Imagine came into existence.

The 1980s and early 1990s witnessed the rapid growth of GIS technology with the emergence of newer and faster graphical interfaces (Baker, 2000), with the advent of Microsoft Windows and Apple-Macintosh leading to the expansion of GIS. Likewise, the introduction of the Internet and software resources made GIS more available to the public. Subsequently, GIS has emerged from its historical foundations as a tool for mapping sciences in many research and government organizations, and as a tool for problem-solving, and spatial analysis that is gradually gaining attention in elementary and secondary classrooms. Contemporary examples of GIS's most encouraging applications are Google Cardboards, Google Maps, visual reality field trips, and story maps.

What are Story Maps?

A story map is a type of GIS map. It is a new web application within the Environmental Service Research Institute (ESRI) web-based GIS platform, ArcGIS online. Story maps combine interactive maps with stories to tell spatial narratives and digital stories (ESRI, 2012). To tell the story of a place, users can create maps by linking "interactive maps with other rich content text, photos, video, and audio" (Harder, 2015, p.37). Story maps use geography to organize and present information, they tell stories using a geographic setting, and they also combine interactive maps with multimedia to build an environment that actively engages users. Story maps are easy to create and use, and they do not require users to have special knowledge of GIS. In fact, the relative ease associated with story maps makes them ideal for use as an instructional technology in a social studies classroom.

GIS in Secondary Social Studies Education

Current literature reports that the growth of GIS has been phenomenal, with its adoption by government organizations and businesses (Baker, 2000). However, those in the secondary educational sector have not fully adopted it. In fact, research studies on the adoption of GIS indicate that the use of GIS in high schools has not made any significant progress (Baker, 2005; Holst & Thebpanya, 2013; Kerski, 2003). One of the many reasons for the absence of GIS in secondary school social studies classrooms is the time it takes to learn how to use the software and develop appropriate lesson plans (Baker, 2005; Kerski, 2003). Many of the studies reviewed agree that GIS requires valuable time for students to learn, and the amount of work spent manipulating GIS technologies can be overwhelming for both teachers and students (Aladag, 2014; Kerski, 2003; McClurg & Buss, 2001).

Studies on teachers' use of GIS revealed that teachers do not have the background, training and time to incorporate GIS-based strategies into their social studies lessons (Incekara, 2010; Kerski, 2003; Meyer, Butterick, Olkin, & Zack, 1999). Other challenges that prevent the adoption of GIS by educators is the absence of specific curricula relating to geospatial technology (Doering & Veletsianos, 2008) and the lack of research to test the effectiveness of GIS in social studies classrooms. For instance, Baker et al., (2015) claim that despite the positive educational outcomes associated with the use of geospatial technologies in education and learning, the absence of research on its effectiveness "to learning is one hindrance to large-scale implementation" (p. 118).

GIS and the Goal of Educational Reforms

Educational stakeholders believe that GIS should be part of the curriculum. Because GIS meets local, state, and national standards, some believe that GIS technologies would provide one of the most positive means of initiating educational reforms (Kerski, 2001). As a classroom technology, GIS is one of the most powerful tools that social studies teachers can employ in their classrooms (Lemberg & Stoltman, 1999). Incorporating GIS technology in teaching social studies can transform the way students learn new materials and concepts because it shifts emphasis from a behaviorist to a constructivist approach that emphasizes student-centered instructional strategies (Doering & Veletsianos, 2008). The interactive nature of GIS maps makes it an ideal constructivist teaching tool, as students actively collaborate to use historical and geographical information and spatial analysis to observe, interpret, and communicate real-world issues in their geography, history, and social studies classrooms (Baker et al., 2012; Johansson, 2003).

Jenner (2006) writes that the infusion of GIS into the geography curriculum has improved the quality of the students' learning. In these respects, teaching no longer depends on the transfer of knowledge from teacher to students; therefore, the quality of learning improves because it derives from a process of inquiry, problem-solving, and critical thinking based on the information accessed from a variety of data sources accessed by GIS software. Using a GIS display also lends itself to Howard Gardner's principle of multiple intelligences that looks at the ways individuals differ in carrying out tasks and solving problems (Gardner &Hatch, 1989). The use of GIS technologies will encourage more positive attitudes toward history and social studies because students can add real world context to social issues and develop the type of thinking that helps them understand on multiple levels (ESRI Education, 2012).

Student Engagement and Learning Performance through GIS

What does GIS have to offer regarding teaching, learning, and engagement? Although limited, studies exploring GIS in K-12 education have been encouraging. Educational researchers are advocating for GIS in K-12 classrooms as a means to improve student performance (Goldstein & Alibrandi, 2013). The use of GIS technology applications adds an extra layer to an investigation by allowing students to explore, investigate, and interpret from a spatial/locational perspective (Fitchett & Good, 2012). GIS has the potential to foster a resource rich environment, enhance spatial reasoning and support problem solving in the classroom. Spatial thinking allows students to understand spatial relationships because they can imagine abstract spaces to address many challenges (Perkins, Hazelton, Erickson & Allan, 2010).

The application of GIS technology using a place-based approach was found to be more attractive to students as they learned to think spatially, ask spatial questions, and perform spatial analysis (Perkins et al., 2010). On promoting student positive attitudes and engagement, Kerski (2003) asserts that, "GIS increased student motivation for geography, altered communication patterns with fellow students and with teachers, stimulated students who learn visually, and reached students who are not traditional learners" (p. 134).

As a teaching tool, GIS increased retention, made learning fun, allowed easy access to informational data, and provided hands-on learning. For instance, teachers interviewed in a research study (Aladag, 2014) stated that GIS enabled visual learning and improved knowledge about maps. With GIS, students became active learners as they worked on different critical thinking activities. Likewise, teachers in another study (Strachan & Mitchell, 2014) reported that story maps "were user-friendly, interactive and engaging, enjoyable for students, and able to help

in presenting material that meets academic standards" (p. 204). Sinton and Lund (2007) summarized the benefits of GIS in social studies classrooms as follows:

- Allows students to see, understand, and engage more with the subject matter
- Allows students to engage in inquiry learning.
- Allows students to represent their point of view from the perspective of others.

These geographical and critical thinking abilities can be applied across all social studies disciplines to identify questions, guide investigations, organize information, suggest an explanation or assist in decision making (p.1-15). A published doctoral dissertation by Songer (2007) presented findings regarding the relative impacts of web-based GIS on content knowledge, geographic skills, and students' self-efficacy. The study revealed that students who used Web-based GIS saw benefits in the technology and reported that it was more engaging than using paper maps. Simultaneously, students learned geography as well as a powerful technological tool for problem solving and analysis.

Building Social Studies Disciplinary Skills and Content using GIS

Every educational system aspires to improve student learning outcome. While positive student academic achievement is an important objective of the educational process, it is critical for social studies teachers to create an environment where students learn using the tools associated with the discipline. At the same time, the new push for educational improvement places more emphasis on helping students develop 21st century skills by teaching disciplinary content through meaningful activities (Rotherham & Willingham, 2009). By using GIS software for inquiry and project-based learning activities, students can build understanding and abilities through engaging in undertakings like research, and becoming more active learners as they work on more authentic problems (Favier & Van der Schee 2012).

When teachers use GIS to enhance their instructional practice, students develop thinking and research skills that involve "formulating research questions, designing or implementing systematic data collection, analyzing and synthesizing data" (Baker, 2005, p. 44). Using GIS as an additional instructional tool was reported to change the learning of geography from the low-level recall of information "to the practice of geography skills" (Segal & Helfenbein, 2008). When students are taught using the tools of geospatial thinking and analysis, not only are they exposed to using a different type of tool for data analysis, but they are also empowered to address issues they may face in meeting future career and civic obligations (Holst & Thebpanya, 2013; Nielson, Oberle, & Sugumaran, 2011; Sinton and Lund, 2007).

Empirical Research on GIS

As more educational researchers realize the benefits of GIS in the K-12 educational settings, several empirical research inquiries have been conducted to test the effectiveness of GIS applications in K-12 social studies classrooms. Al-Kamali (2007) designed a quantitative study to examine the attitudes of high school social studies students towards GIS and to investigate the effects of gender, age, education, and family income on their attitude. The conclusions from the study showed that students demonstrated a positive attitude towards using GIS technology in learning social studies. The teachers interviewed in the study also revealed that the students showed a greater engagement when they used the handheld GIS to look at data than the computer monitor. The teachers further explained that the students had a difficult time making the connection between the abstract data presented to them and concrete concepts that they experienced in lab activities. Overall, the results of this study support results from other findings indicating that GIS can enhance students' outcomes when they are engaged in inquiry learning.

The researcher, however, called for more studies to leverage the advantages of incorporating GIS technology into curricula across subject areas, and the impact of GIS- assisted instruction on social studies scores on standardized achievement tests.

Another dissertation study conducted by Shin (2003) used a mixed study design to explore if GIS could be utilized as an effective tool to enhance fourth-grade students' understanding of geography and history. The researcher identified eight indicators of how students built their knowledge of geography and history. These indicators include: (1) making connections; (2) comparing and contrasting; (3) applying; (4) analyzing; (6) evaluating; (6) generalizing; (7) seeing the big pictures of places; and (8) using map skills. Shin's study highlights several significant discoveries. First, students were able to actively construct their knowledge of history and geography using GIS because of engagement facilitators that involved their personal interest, collaboration with peers, relevant and meaningful instruction. For example, when students decided on what they wanted to learn, they became more engaged in their learning. Using official data from their immediate environment allowed students to connect their classroom learning to real life situations. Second, combining GIS with well-designed instruction was reported to improve learning in ways that most other methods do not. Third, for the teacher, time management posed a big challenge when using GIS in a K-12 environment because of issues arising from classroom management and the time allocated for social studies. School and district demands were another major challenge faced by the teacher. The study also found that students were not discouraged by technical problems. They considered them to be natural occurrence with the computer activity and easily overcome them.

Tesar (2010) used both qualitative and quantitative methods to investigate the extent to which Google Earth is used as an effective means to enhance middle school students' historical

empathy and develop geographic literacy. Results from the study showed that the Web-based GIS program could be an effective way to learn geography. Students viewed history and social studies as courses that should be explored together and not in isolation, and their ability to spatially visualize the historical locations they were learning about increased their memory and understanding of geography.

Story maps are user-friendly, interactive and engaging. According to (Strachan, 2014), teachers felt that their students would enjoy using story maps, and indicated that the maps could help present standard-based instructional materials. On the use of story maps as a teaching tool, participants communicated a slight preference for using pre-made story maps over making their own. Even though the participants demonstrated an overall positive attitude towards using story maps as a teaching tool, the study highlights several challenges that prevent the successful implementation of GIS technologies. These obstacles include inadequate technology in some cases, the need for training on different GIS applications, and lack of time to successful plan and integrate GIS-enhanced instructional activities in middle and high school classrooms.

Summary of Literature Review

Recent studies suggest that social studies as a discipline serve the purpose of teaching students how to make connections between the classroom and the real world. Students learn to connect with the community and the larger society. They understand how individuals, groups, and the immediate and extended community meet different needs and make provisions for the common interest. The ability to integrate knowledge and collaborate with others is crucial to making well-informed decisions based on their understanding of social studies. It is apparent from the reviewed literature that social studies as a subject is charged with the responsibility "for

liberating students from the ignorance of social topics and developing critical thinking skills for making social decisions" (Nelson, 2001, p. 30).

There is a need for better social studies instruction in middle and high schools to reflect the goals of providing a holistic and meaningful social studies education. To prepare middle and high school students to respond to challenges of the 21st century, social studies teachers need to provide an education that is best suited to train informed and responsible citizens, who use the skills they learned to make the world a much better place. From a learning perspective, students engage when teachers' instructional practice provides opportunities for them to work on meaningful activities that are also relevant to life. Students want a chance to solve problems using technology, to learn from each other and from experts in the field, and to learn through dialogues and inquiry. The reviewed literature clearly demonstrates that students engage better when interactive technologies and different forms of multimedia are employed as a teaching and learning tool.

Reviewing a variety of scholarly articles related to the use of GIS technology exposes the lack of adequate research on the use of GIS technology in secondary social studies classrooms. A few studies, however, have researched the benefits and challenges of using GIS as an instructional tool in social studies classes. With GIS, students are encouraged to understand and respond to 21st century issues and opportunities by learning to think and communicate in an efficient manner using geographic literacy to improve economic competitiveness, maintain quality of life, and manage scarce resources.

Similarly, from an academic and learning viewpoint, the inclusion of GIS in a middle school curriculum resulted in a significant positive effect on academic and standardized test scores in science and social studies. Different research studies also demonstrated that GIS could

improve academic achievement, motivation, and student engagement. The use of GIS in teaching and learning benefited the students in many of the studies reviewed. For instance, GIS made learning fun and engaging while increasing retention. The engaging, interactive, and authentic nature of GIS applications allowed students to practice social studies. Students went beyond the traditional to more realistic real life experiences that required them to tackle solutions to real-world problems. Furthermore, the introduction of GIS marks a paradigm shift from the old method of teaching social studies based on the mere acquisition of knowledge, to a more constructivist approach. Most of the approaches in the studies reviewed emphasized technologically based project, problem, and inquiry-based learning as an instructional method.

On a warning note, existing literature also revealed that very few secondary schools had adopted the use of GIS technology despite the encouraging reports of realizing educational improvement. One reason for the poor implementation in schools across the country is the absence of empirical research on the benefits of using GIS technologies as effective teaching and learning tool. The review of the literature also indicates that the lack of professional development for training teachers on the use of GIS in classrooms poses a challenge for large-scale implementation. Many of the studies reviewed agree that because teachers are busy with teaching to meet mandated testing requirements, it is difficult for them to find time to learn how to use GIS.

With respect to data collection, most of the studies on the benefits of GIS applications in secondary social studies classrooms derived their data using quantitative methods. On the other hand, quantitative data, when employed for measuring engagement, do not provide in-depth information on the kind and degree of learning experienced by students. Also, quantitative studies do not take into consideration the voiced opinions of the students regarding the benefits

of GIS-enhanced instructions. The expressed views and perceptions of the learners is a crucial factor in the application of GIS-enhanced instructional methods and its impact on improving student engagement in a social studies classroom. Also, without qualitative information from students, it is difficult for educators to customize their instructional strategies to match the particular needs of the students.

While some of the studies compared GIS technologies with use of conventional paper maps or other types of traditional instructional methods, others looked at how students' and teachers perceive the inclusion of GIS and story maps as a learning tool in social studies classrooms. Based on the available literature, it seems justified to conduct an exploratory study that creates an opportunity for students to describe the qualitatively different ways they understand their learning experiences with GIS-enhanced instructions. There is, therefore, a need for more qualitative research on new GIS applications, such as story maps, in secondary social studies classrooms and the power that these technology-supported methods can have on promoting student engagement and real-world application of knowledge. Also, the opinions and perceptions of students, concerning how story maps based social studies instructions improve their learning and classroom engagement, will be invaluable in assisting teachers to develop and design effective instructional strategies that could help learners acquire 21st century skills.

CHAPTER III

THEORIES AND METHODOLOGY

This overall investigation aims to evaluate student engagement in an 8th-grade classroom based on the perceptions and input of the students themselves, following the use of story maps in learning social studies. The study explores student engagement from the perspective of the student rather than what teachers observe in the classrooms. This study employs qualitative research methodology which allows researchers to study a phenomenon in their natural setting, and allows their interpretation of understanding based on how the participants experience a given phenomenon (Creswell, 2013). This chapter will focus on the ontological, theoretical, and methodological framework and procedures adopted for this study. The ontological framework that guides this study is the College, Career, and Civic Life C3 Framework for Social Studies Standards. The methodological framework uses a descriptive phenomenography research approach of inquiry to learn more about how students view their engagement, while the theoretical framework makes use of Constructivism, Theory of Engagement, Culturally Responsive Teaching, Schema Theory, and Critical Pedagogy.

Research Questions

The problem of student engagement has necessitated educational stakeholders and teachers to adopt new instructional methods to engage students in learning. Exploring student engagement and learning through the lens of a phenomenographic inquiry involves focusing on observation, student written reflections and teacher and student interviews which will help reveal

students' pattern of thought as they learn social studies using story maps. Interviews with students will be conducted and analyzed to provide answers to the following primary research questions:

1. How do eighth grade students perceive their engagement with social studies when it is taught using story maps?
2. How do eighth- grade students perceive the relationship between GIS, story maps to their own life?

The Ontological Framework: The C3 Framework

Ontology is a part of philosophy that is concept specific. It deals with the nature of being, of existence, and the structure of reality. Ontology is "a formal, explicit specification of a shared conceptualization" (Guarino, Oberle, & Staab, 2009, p.2).

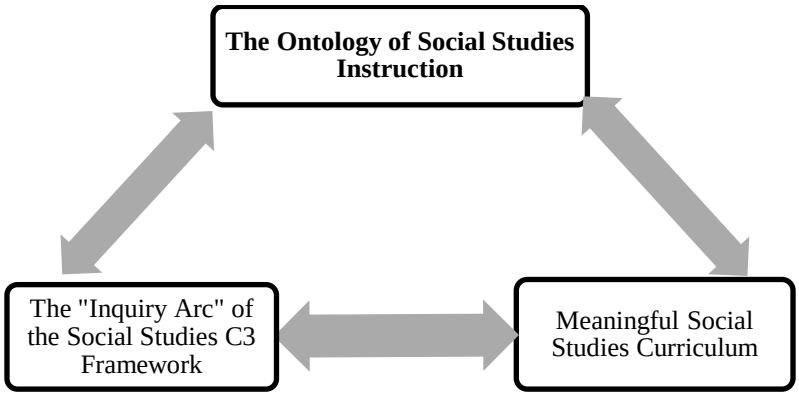


Figure 3.1: Ontological framework for student engagement using GIS-story maps

Social studies ontology is shaped by the National Council of the Social Studies (NCSS) College, Career and Civic Life (C3) Framework for Social Studies State Standards (2013). The Framework is a set of standards developed by the NCSS to help individual states develop their social studies curriculum. It provides direction for states to include the application of knowledge within the disciplines that make up the social studies curriculum (history, geography, civics, and

economics). The framework depends on an “inquiry arc”, which is “a set of interlocking and mutually supportive" (C3 Framework, 2013, p.6) constructs that address how students learn social studies content. Focusing on inquiry allows students to use disciplinary concepts and tools to develop a deep understanding of social studies. The C3 Framework addresses the immediate importance of inquiry based learning:

> Now more than ever, students need the intellectual power to recognize societal problems; ask good questions and develop robust investigations into them; consider possible solutions and consequences; separate evidence-based claims from parochial opinions; and communicate and act upon what they learn. And most importantly, they must possess the capability and commitment to repeat the process as long as is necessary. Young people need strong tools for, and methods of, clear and disciplined thinking in order to traverse successfully the worlds of college, career, and civic life (p. 6).

The standards help equip students with the knowledge and skills to become more aware of problems in the society and to make them knowledgeable, and productive citizens. Therefore, the emphasis will be for teachers to use questioning as a key to student learning, thus, utilizing the “inquiry arc” model in the C3 framework.

The “inquiry arc”

The C3 framework inquiry arc is a connecting set of ideas made up of four dimensions of investigations in social studies. The first dimension addresses developing questions and carrying out investigations. Here, the construction of knowledge is based on the issues developed by students and teachers to engage in inquiry learning. The second dimension looks at the application of concepts and tools. With dimension two, teachers devise a plan to answer the questions. Here, different disciplinary tools that include geospatial technologies like (story maps) serve as a foundation for learning. The third dimension focuses on gathering, evaluating, and using evidence. Using dimension three, students provide the evidence that gives an explanation

for the various conclusions they reach. Lastly, the fourth dimension concentrates on collaborating and communicating conclusions. Here, students present their answers and ideas using different types of media. It could be an essay, a video production, or a spatial narrative using story maps. This study is designed to determine if story maps engaged students in the construction of knowledge that expands their "capacity to know, analyze, explain, and argue about interdisciplinary challenges in our social world" (C3 Framework, 2013, p. 6).

Another driving conceptual motivation for this study is the academic purpose of the four subjects within the umbrella of social studies. As a discipline, social studies explore citizenship responsibilities by investigating the human dimensions of society using a combination of civics, economics, geography, and history. The main purpose of social studies education is to provide the foundation and skills for high school graduates to transition into the larger society as adults who are responsible citizens and productive members of the community. Geographic literacy, awareness of civics, economics, and history, is necessary for decision making on a local and global scale. Hence, the focus of this study is for students to investigate, understand, appreciate, and apply knowledge, processes, and attitudes from academic disciplines in the humanities to transition to and make sense of a vibrant world. Additionally, research studies are needed to see if employing GIS provides any benefits to students in a secondary social studies classroom.

Alignment to Educational Standards

This study aligns with the Geography for life National Geography Standard 1 (2012) that addresses how students can "use maps and other geographic representations, geospatial technologies, and spatial thinking to understand and communicate information" (p. 9). It supports the NCSS Standard 3 (2010), that call on students to apply their learning towards

answering questions such as “How do maps, globes, geographic tools and geospatial technologies contribute to the understanding of people, places, and environments?”(para.12). This research also supports the Mississippi Social Studies Framework geography standards (2011) that discusses the need for students to become “aware of geospatial technologies such as GIS, GPS, remote sensing, and digital maps (p.52).

Theoretical Framework

Theories provide understanding of how the world works, afford researchers with a variety of ways to address complex problems and issues, and focus attention on different aspects of data by providing a foundation for conducting data analysis (Reeves, Albert, Kuper, & Hodges, 2008). If student engagement is an important indicator of student academic performance, the theoretical framework provides an explanation that helps to elucidate the explored phenomenon. The theories that are used in this study are Constructivism, Culturally Responsive Teaching, Theory of Engagement, Schema theory, and Critical Pedagogy as shown in Figure 2.

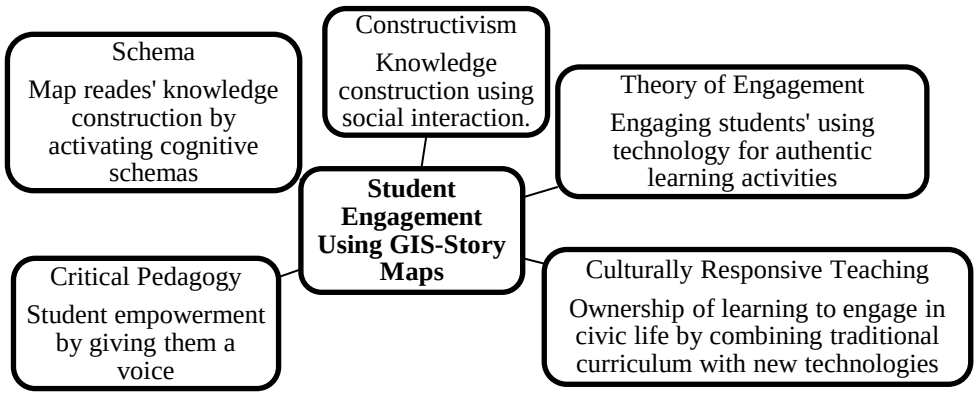


Figure 3.2: Epistemological framework for student engagement using GIS-Story Maps

Constructivism

Ultanir (2012) defines constructivism as a “learning or meaning-making theory that offers an explanation of the nature of knowledge and how human beings learn” (p. 195).

Students make meaning when they connect prior knowledge to new occurrences, which helps them to make sense of the world. For example, when students learn a new concept in a social studies classroom, they make connections and reconcile it with their earlier opinions and knowledge to foster new learning and understanding. In other words, in constructivism, the individual is not a passive recipient of meaning, but an active, resourceful, and reflective participant who constructs new meanings using a range of attributes and skills (Ultanir, 2012). Karaduman and Gultekin (2007) suggest the following principles of constructivism that promote students' engagement and encourage learners in a secondary social studies classroom:

1. Examination of new learning through making connections with their previous experience. Advancing the attention of the students through the learning cycle model that involve discovery, definition, and application.
2. Covering some key terms such as "define", "classify", "guess", "construct" that guide students' progress in the learning process.
3. Supporting a variety of perspectives, encouraging students to express their point of views, and provide connections with real-life experiences through examples.
4. Supporting student independence and interaction
5. Encouraging inquiry.
6. Employing learning strategies such as problem-based learning, case studies, project-based learning and collaborative learning (p.4).

Learning is socially constructed within the social constructivist environment (Vygotsky, 1978), and influenced by the social environment. According to Savery and Duffy (1995), the individual learning within a constructive learning environment is based on the interaction with other persons to test understanding. Therefore, collaborative learning groups allow learners to

test their comprehension and consider the learning of other learners as a tool for "enriching, interweaving and expanding our understanding of particular issues or phenomena" (p. 2). Students also create learning when activities include larger tasks and problems. There must be a purpose beyond what is assigned, and the learner sees and accepts the relevance of the learning activity.

Furthermore, using the constructivism involves the quality of active intellectual inquiry. For example, Anthony (1996) asserts that the quality of learning in the classroom is based on the mental experience of students that involves active intellectual inquiry including the use of various instructional methodologies which impact the quality of knowledge. There is evidence that most social studies students disengage because their material is not challenging or authentic enough. Using various instructional strategies will not only align the active nature of learning with an actual learning experience, but it can also affect the type and quality of knowledge. To achieve the goals of social studies education, it is important that active learning be combined with dynamic cognitive experiences. When students learn using story maps, they are not only involved in the authentic construction of knowledge; they interact and learn from each other. They combine the active and mental process of learning to make informed decisions. When they learn within a social environment, they develop language skills, mnemonics, and codes to facilitate engagement and understanding of the learning activity.

The Theory of Engagement

Also connected to the constructivist perspective is the Theory of Engagement. The key theoretical assumption is the view that students should be engaged in meaningful learning activities through collaboration with others. It emerged from the work of Greg Kearsley and Ben

Shneiderman (1998). The theory developed from the idea that when students are involved in a task that they find meaningful, their level of engagement increases. When students are engaged, they not only retain information, but they also have a much deeper knowledge and understanding because they can transfer their learning to real-life contexts. Likewise, when students are engaged in learning, they are involved in activities that include "active cognition processes such as creating, problem-solving, reasoning, decision-making, and evaluation" (para.4).

Recognizing the role of technology in facilitating all areas of engagement, the theory of engagement puts more emphasis on the use of technology to "facilitate engagement in ways which are difficult to achieve otherwise" (Kearsley & Shneiderman, 1998, p.1). Technology provides tools that students can use for investigating, working on projects, and problem-solving. Additionally, it provides a technology-rich learning environment that helps to facilitate engagement through creativity and communication. The theory suggests three basic principles of engaged learning: *relate*, *create*, and *donate*. *Relate* entails learning through collaboration and group efforts. When students collaborate and discuss their ideas, their desire to learn increases. *Create* involves learning using project-based activities with purpose and meaning. When teachers give students the opportunity to apply their knowledge and skills to a particular context, students own their learning and develop pride in their work. The third principle *donate* allows students to work on authentic learning activities that fit into different occupational interests. When students work on practical projects, it increases their engagement, and they learn skills that apply to real-world situations.

The Theory of Engagement also allows students to move away from a "passive absorption of information to a conception of learning as the active engagement in meaning" (Wilson & Peterson, 2006, para. 2). It allows learning to move from a teacher-centered approach

to an engaging classroom environment that involves social interactions, meaningful learning activities, collaboration, critical thinking, and problem-solving. Engagement theory is used as one of the theoretical backbones of this study because the application of GIS technology does not only engage students in inquiry learning activities, it provides a learning experience that "stimulate the kinds of experiences students will face outside the classroom" (Marshall, 2007, p. 1).

Culturally Responsive Teaching (CRT)

CRT is a pedagogy committed to collective empowerment. It is an educational pedagogy "that empowers students intellectually, socially, emotionally, and politically by using cultural referents to impart knowledge, skills, and attitudes" (Ladson-Billings, 1994, p. 382). CRT comprises the following three propositions: (a) students must be academically successful; (b) students must take responsibility of their cultural background; and (c) students must be empowered to take ownership of their learning to engage in civil life.

Gay (2002) describes CRT as an educational pedagogy that relies on applying the "cultural characteristics, experiences, and perspectives of ethnically diverse students as conduits for teaching them more effectively" (p. 106). Thus, CRT allows teachers to decide the cultural impact of learning experiences. It also enables teachers to use instructional strategies that focus on "quantity, accuracy, complexity, placement, purpose, variety, significance, and authenticity of the narrative texts, visual illustrations, learning activities, role models, and authorial sources used in the instructional materials" (Gay, 2002, p. 108).

A question that often arises is how does CRT support student engagement? To support student engagement and construction of knowledge, teachers must help students connect

previous knowledge with new learning experiences. It involves exposing students to activities that are exciting and important to them (Villegas & Lucas, 2002). In the context of this study, story maps across the social studies curriculum can be used to build students' cultural understanding and spatial awareness of their immediate environment and the world around them. Cultural and spatial awareness are critical, because, today, it is not only necessary to teach students factual information, but is also necessary to teach them how to understand and respond to the various 21st century skills and challenges. Similarly, the dynamic nature of social studies is reflected as students study the "changing cultural and physical environment; know the past; read, write, and think deeply; and act in ways that promote the common good" (C3 Framework, 2013, p. 1). Also, CRT allows students to see different connections of events happening at the local, regional, and global level as humans and the physical environment continue to interact (Heafner & Downs, 2012).

Schema Theory

Schema Theory provides a way for map readers to break information into schemas for processing (Kent & Cheng, 2008). The schema principle represents the way information is acquired, processed and organized into meaningful systems (Wiseman, 2008). Additionally, it affirms the organization of knowledge into units called schemata. Sir Fredrick Bartlett first proposed the concept of a schema by suggesting that memory in the form of schema provides a mental background for understanding and recalling information (Wiseman, 2008). Anderson, an educational psychologist, is credited with introducing the schema theory into education.

As a theoretical approach, the schema theory plays a critical role in cognitive processing. It allows learners to build on and to revise their schema when they acquire new information, and

to understand how the map readers use schemata to process information. Per Kent and Cheng (2008), map reading and comprehension depend on the efficient processing of visually displayed information. The task involved in reading a topographic map requires cognitive skills that involve "efficient spatial memory performance, an ability to mentally rotate internal and external representations, and familiarity with task-specific map representations" (p. 2298). When compared to novices, map reading experts study and process information on a map at a more efficient and deeper level of comprehension. These schemata allow the experts to employ some form of data chunking (breaking into smaller units) and activation of related mental schemas to permit quick retrieval of information. It allows learners to focus attention, to comprehend, problem solve, organize and interpret information. Using schema activation, students can use visuals and information provided on the GIS maps to process information, and make predictions based on the information they learn from the map. Through schemata, old knowledge influences new information, which helps in problem solving and organizing information (Liu, 2012).

Critical Pedagogy

Critical pedagogy is a teaching approach that tries to empower learners to criticize existing beliefs, and forces people in the society to ask new questions (Wink, 2005). Historically, critical pedagogy emerged from the work of Paulo Freire in Brazil. His experience with working with the poor forced him to develop educational standards that would help to improve the lives of the oppressed or the less fortunate. (Breuing, 2011). In North America during the late 70s and 80s, Henry Giroux and other educational scholars introduced a critical pedagogy based on the progressive ideas of John Dewey. Their idea of critical pedagogy focused on understanding the role of schools in transforming social, political and economic life. They

believed that a critical pedagogy will allow educators promote democratic and social values in their classrooms (Breuing, 2011).

Focusing on critical pedagogy in teaching and learning raises the awareness of students so that they can control their education. Critical Pedagogy allows educators to give students a voice and changing from a passive way of learning to an active student-centered learning atmosphere (Wink, 2005). Additionally, Critical Pedagogy focuses on the narratives of children's lives and their lived experience. Maxine Greene (1993) wrote on the benefits children's narratives, asserting that "it would be a question of releasing potential learners to order their lived experience in divergent ways, to give them a narrative form, to give them voice" (p. 219). As conveyed in Maxine's voice, learning is an ongoing process that allows individuals to construct meaning based on their lived experiences.

With respect to this research, since the concept of story mapping is a relatively new phenomenon in the K-12 curriculum, the voice, provides an opportunity for students to be part of the change process. Giving students a voice empowers them by making them co-researchers in their education, including helping to evaluate whether they perceive themselves as more engaged when teachers use it as a teaching tool. When students have a voice in their learning, it is likely to increase their involvement and engagement in learning (Toshallis & Nakkula, 2012). In the words of Toshallis and Nakkula (2012) "To learn something deeply, students need to internalize it and make it their own. To be able to use that learning and make it matter to them, students need to participate substantively" (p. 31).

Phenomenography as a Research Methodology

What is Phenomenography?

The word phenomenography derives from two Greek words *phainomenon*, which means appearance and *graphein*, which means description (Khan, 2014). It examines the different ways people look at the world. Marton and Booth (1997) in (Ornek, 2008), described phenomenography is described as:

> Focused on the ways of experiencing different phenomena, ways of seeking them, knowing about them and having skills related to them. The aim is, however not to find the singular essence, but the variation and the architecture of this variation by different aspects that define the phenomena (para. 3).

In phenomenography, the researcher focuses on different ways people experience a particular phenomenon (Marton, 1981; Marton 1994). As a research approach, phenomenography focuses on the qualitatively different ways students comprehend and experience a phenomenon (Pang & Ling, 2012). In a phenomenographic research study, the investigation is not on the experience, but on the different ways people understand the phenomenon (Larson & Holmstrom, 2007).

The Emergence of Phenomenography

Developed by a research group in the Department of Education at the University of Gothenburg, Sweden, the word *phenomenography* was used first in 1979 (Ference Marton, Roger Saljo, Lars Owe Dahlgren, and Lennart Svensson) (Marton & Booth, 1997; Larsson & Holmstrom, 2007) (Marton, 1988). As a research methodology, it has historically focused on addressing questions relating to learning and understanding by observing how people view learning within a given context (Larson & Holmstrom, 2007). According to Marton (1998),

during the first study the researchers were interested in the ancillary benefits of reading and how they went about reading their material. The researchers describe the results of their study:

> After reading and re-reading these transcripts, a striking fact appeared. Students understood the very same text materials in a number of qualitatively different ways. The fact that the same text, when considered as a whole, carried different meanings for different students was more interesting to us than the more usual finding that students retained quantities of information (pp.148-149).

Since the initial study, the approach has been used in different educational settings. For instance, phenomenography has been used to research secondary school students' experiences in learning (Gardner, 2008). In social studies classrooms, it has been used to examine students' conception of GIS (West, 2008). White (2006) combined quantitative and phenomenographic research methods to examine educator and students conceptualizations of GIS as an instructional technology in K-12 education. The knowledge derived from phenomenographic research can be used to improve teaching and learning. It allows teachers to discover the different ways students learn.

The basic unit of phenomenography is focused on the aspects of learning distinguished by learners (Marton, 2015). First, the world is understood and described in the second-order perspective; the second-order perspective means that experience relies on the qualitative description of the participant and not the researcher (Khan, 2014; Yates, Partridge, & Bruce, 2012). Secondly, phenomenography uses a non-dualistic ontology in which the object and the subject are not separate or independent from each other (Ornek 2008). Data analysis leads to the identification, categorization, and description of conceptions in a phenomenography, which serves to identify and describe the variation of experience that represents the different ways in which the participants understood the phenomena (Ornek, 2008).

Phenomenography and Student Engagement

This research focuses on phenomenography for a number of reasons. First, student engagement in learning activities involves an understanding of the content as a result of embarking on different learning activities. As a consequence of the introduction of a new instructional method, a new way of experiencing content is achieved. Therefore, the concept of what, how, and quality of learning and understanding becomes paramount as a result of the nature of the learning activity, whether students are learning, reading information, problem-solving, or practical demonstrations (Booth, 1997). Introducing and employing story maps as an instructional tool will provide an opportunity for students to engage in both project and problem-based learning activities that will not only encourage students to practice skills associated with the discipline of social studies, but provide learning experiences that are both relevant, and authentic (Booth, 1997).

Secondly, phenomenography is suitable for the proposed study because it offers a research approach that describes, compares, and contrasts conceptions using the "explorative form of data collection and the interpretative character of the analysis of data" (Svensson, 1997, p. 162). Furthermore, it creates an avenue for describing the different learning experiences of students, the way they understand what they are learning, and the different ways they go about learning new tasks. Finally, when teachers are aware of the variety of student experiences using GIS-story maps, opportunities might be opened for more teachers to incorporate GIS as a tool to improve the way students learn (Booth, 1997).

Phenomenography and Learning

Studying other people's perspectives of the context surrounding them, phenomenography focuses on what others think about their world (Marton, 2015). Therefore, in a learning

environment, phenomenography allows the researcher to consider what students say about their learning experiences. In a classroom situation, students are aware that academically they all operate on different levels; however, how they go about their learning is not visible them. The differences among them are based on how they perceive what they are asked to do. For example, if students in a social studies project are invited to come up with a solution to global terrorism, they will probably find different ways to solve the problem. What they see as the solution to global terrorism will depend on how they see global terrorism, what it means to them, and what it appears to be. Unless they have a discussion about it, the way the students go about the task is not visible. To them, there is only one way of looking at the task: their own way (Marton, 2015).

Phenomenography allows researchers and teachers to recognize how students understand what they are learning. Knowing and understanding how students learn will contribute a significant step in learning and teaching, because the phenomenon is viewed through the eyes of the students (Booth, 1997). As noted by Morton (2015) for effective learning to take place, "there has to be interaction between "pupil" and "teacher" in order for the former to learn from the latter, and at the same time, the teacher has to learn from the pupil in order to help the pupil to learn better" (p.3).

Phenomenography also provides an opportunity for researchers to analyze the relationship between the learner and the phenomenon. In phenomenography, both the subject and the phenomenon are not considered separate objects, but as two related objects (Khan, 2014). Stamouli and Huggard (2007) describe the object of learning in a phenomenographic project. The object of learning explains how a group of learners go through a particular experience, and how they interpret the phenomenon. Experiencing the phenomenon (in the case of this study, GIS-story maps) introduces a relational approach (the relationship between the researcher and

the phenomenon). Additionally, there is a connection between the researcher and the phenomenon because a thorough knowledge and understanding of all aspects of the phenomenon is required by the investigator. The object of learning is further explained in figure 3:

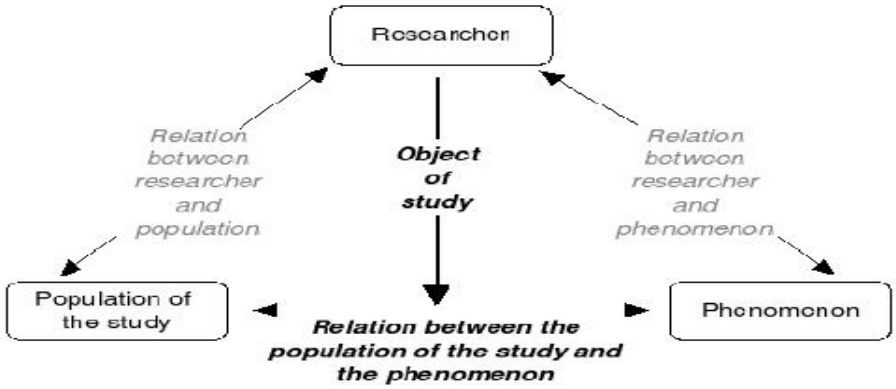


Figure 3.3 Relationship between the phenomenon with subjects and the researcher

(Stamouli & Huggard, 2007, p. 182)

The core of a phenomenographic research is to reveal and describe variations of human experiences and understanding (Yates et al., 2012). These experiences are made up of meaning and structure represented in the "anatomy of experience" (Marton & Booth, 1997). The anatomy of experience describes the different ways participants undergo a particular phenomenon. They are made up of four different aspects, namely: the *how*, *what*, *referential*, and *structural* aspects (Booth, 1997; Khan, 2012, Stamouli & Huggard, 2007; Yates et al., 2012). The *how* aspect of learning consists of the act of learning and the indirect object of learning. The *how* relates to how the learning task is carried out. It addresses how the learner goes about understanding the learning activity and the nature of the inquiry. The act of learning refers to the experience of learning itself, while the indirect object of learning addresses the goals or learning outcomes. The "*what"* of learning represents what students think about their learning, and the quality of the learning as a result of the activity (Booth, 1987).

The *referential* aspect is related to the "*what"* aspect because it explains the meaning of an experience. The *structural* aspect is connected to the *how* aspect and refers to the structural side of the experience. It addresses the understandings or focus of the object (Khan, 2014). The structural aspect is further broken down into the external and internal horizon. The external horizon characterizes what is in the background of the experience (Yates et al., 2012). The internal horizon refers to the phenomenon in focus and "the internal relationship of the phenomenon's parts to each other and its' cohesive whole" (Yates et al., 2012, p. 101). These two aspects of experience do not occur in isolation. They are connected and occur at the same time. Thus phenomenography provides a way to gain more understanding about the human experience. This understanding is significant in qualitative research because it offers a lens to see and reveal ways in which people experience a given phenomenon (Yates et al., 2012). The aspect of experience is illustrated in figure 4:

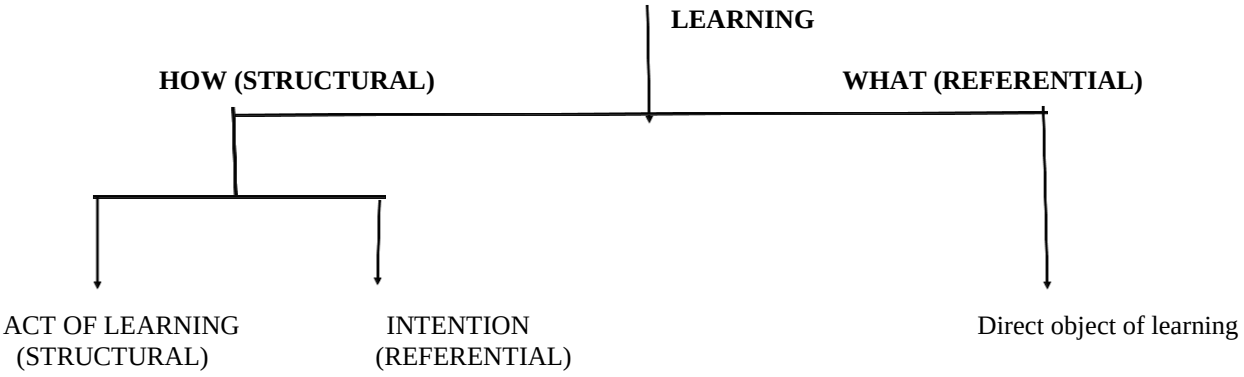


Figure 3.4: Experience of learning (Khan 2014, p. 37).

The Current Investigation

The Research Setting and Participants

The School District: The study was conducted in a school district with a total enrollment of 4,250 students, located in the Mid-South region of the United States. In addition to the traditional way of learning different middle and high school subjects, the district is involved in the One to One Digital Learning Initiative. Each middle and high school student has a MacBook Air laptop assigned as a personal learning tool.

The social studies curriculum is modeled after the State of Mississippi Social Studies Framework (2011). The framework provides guidelines that indicate the academic content and skills that the different social studies disciplines are required to teach. Using the framework, teachers design instruction that encourages students to be knowledgeable about the world they live in. It promotes human interaction, cultural diversity, and heritage. The goal of the social studies curriculum is to promote citizenship education in order to foster the development of informed citizens in a democratic society.

The School

The study was conducted in Upper Valley Middle School (pseudonym). Upper Valley Middle school was selected because of the proximity to the investigator, and the district's emphasis on the use of technology to provide a personal learning experience for their students. According to the Mississippi Department of Education (2016), the school has a population of 645 students. The racial makeup of the school as of the 2016/2017 academic year is 52.56% White, 38.45% African-American, and less than 5% Asian, Hispanic, Native Americans, Pacific Islander, and Multi-racial. According to the participant teacher, the student population has the

largest achievement gap, relative to the average in the state of Mississippi. While some of the students come from extremely wealthy families, others come from economically disadvantaged families, and about 50% of the students receive free and reduced meals.

The school's social studies instruction is modeled on the five essential content strands, competencies, and objectives outlined in the Mississippi Social Studies Framework, namely: Domestic Affairs, Global Affairs, Civil Rights/Human right, Economic, and Culture (Mississippi Social Studies Framework, 2011). These strands allow educators to teach students to understand past and present events, and develop their critical thinking skills to make informed decisions in the future.

Upper Valley Middle School strives to produce students who are equipped to transition into high school as they prepare to enter college or the work force. According to the participating teacher, the school expects students to be educated in the history of both the country and the state of Mississippi, and competent in the political, social, and economic arenas of both (D. Webb, personal communication, October, 12, 2016). It is the expectation of the social studies department that students are civic-minded and prepared to be contributing citizens in society.

The Class

In the eighth grade, Mississippi Studies and geography are each taught as a one semester course. Students spend the fall semester learning the history of Mississippi. The class focuses on the time beginning with European occupation, traveling through statehood, the Civil War and post-war Mississippi, and into present day. Students use maps to trace exploration routes, locate Native American tribes, identify battle fields in times of war, and track places that lead to

economic growth in the state. They also focus on the geographic, historic, economic, political and social events that allow them to appreciate the contributions of the people of Mississippi. Using the social studies competencies provided in the framework as a guide, teachers design and implement a curriculum that addresses the different needs of the students.

The second semester geography course introduces students to world geography. The course content addresses the earth's systems and how they appear on maps and globes. The main focus of the course is to allow students to build their understanding of how the physical and human geography of the earth interact and continue to work together. Teachers design lessons that incorporate geographic knowledge and tools to pose and answer geographic questions.

The Teacher

Mr. Tony Webb (pseudonym) was chosen for this study on the basis of my previous relationship with him as a classmate. Mr. Webb currently teaches eighth grade Mississippi Studies and geography and is in his thirteenth year as a social studies teacher. He was the winner of the Teacher of the Year Award in the 2015/2016 academic year at Upper Valley Middle School. Webb is familiar with story maps, and he has taken a GIS class with the researcher. Webb is a big believer in project-based and student-centered learning and he believes that students can learn more if they are engaged in learning activities.

Target Students

One of Mr. Webb's social studies classes was purposely selected for this study. Purposeful sampling is based on the assumption that the researcher wants to understand, and therefore selects a sample from which the most can be learned (Patton 2002). The sample class

contains twenty-two students. Out of the twenty-two students in the class, nineteen students agreed to participate in the study. From the nineteen students, fourteen student-participants returned their signed parental consent forms and the fourteen students were selected to be observed and interviewed as participants in the study. Overall, the fourteen student participants were from diverse ethnic backgrounds. With the teacher himself, the study had a total of fifteen participants.

Data Collection Procedure

Before data collection, approval for the study was obtained from the dissertation committee, and the University Institutional Review Board (IRB). After permission was granted to embark on the study, the researcher followed the steps outlined below:

- Established appropriate communication lines with the participating teacher, Mr. Tony Webb.
- Met with the principal to discuss the research. At this meeting, the principal asked the researcher to write a formal letter to the superintendent of the school district asking for permission to conduct the study.
- Met with the participating teacher four times to discuss the research. At these meetings, the details of the lesson unit were discussed, and the teacher was given an opportunity to make suggestions and additions to the unit.
- Met with the students to discuss the research. During the meeting with the students, the researcher told students about the study and solicited their help in conducting the study. Students were encouraged to ask questions about the research, and those who agreed to participate in the study were given a parental

consent and student assent form (Appendix A and B) to ask for a formal permission to participate in the study.

- Met with the teacher to collect the consent forms.
- Met with the teacher to develop a timeline for the study.
- Met with the students again about the importance of getting their consent forms signed.
- Met with the teacher and the students to collect the additional consent forms.

Pilot Test

A pilot test was conducted by the researcher and participating teacher before the implementation of the GIS story map lessons. A geoinquiry lesson titled *Rivers and Transportation* (Bunin & Esposito, 2014) (Appendix C) was used to access the appropriateness of the observation protocol, reflection and interview questions. During the lesson, two students were observed in 5 cycles of 10 minutes. After the lesson, the students were given the questions to determine if the questions were clear and adequately worded. In addition to the students, experts in qualitative interview questions were asked to review the reflection and interview questions for reliability. Advice from the experts allowed the researcher to reframe the questions in order to prevent leading the participants and to ensure questions were aligned with the research questions.

Story Map Unit Design

A story map unit titled *Travelling through the Trail of Tears* (Appendix D) was used to answer the research questions. The unit consisted of a series of lessons that highlighted the

Native American experience before and after the Indian Removal Act. The ArcGIS Online software was utilized in the preparation of the story maps.

Several features were taken into consideration when this unit was designed: first, the unit was a part of the current Mississippi program of study; the lessons were created using the national social studies and geography standards, the Mississippi social studies framework (2011), and the Webb's Depth of Knowledge classification system. The Webb's Depth of Knowledge (DOK) classification provided a frame of reference to engage students with the content (Combs, 2016). In addition, the lesson plan template used for this study was designed to serve as "model standards-based lessons and was highly detailed to provide support for teachers with varying levels of expertise and experience in teaching geography" (Waite, & Mohan, 2014, p. 87).

The introduction of the College and Career Readiness Standards (CCRS) has made it necessary for teachers to adjust their way of teaching to meet the demands of teaching 21st century skills. The literacy objectives in the Common Core Standards have also provided ample opportunities for students to understand, create, and communicate academic knowledge (CCSSI, 2010). Similarly, the social studies C3 Framework aligns with the Common Core to teach social studies subjects using literacy strategies (C3 Framework, 2013). Both the Common Core standards and the C3 framework were used in the lessons to set expectations for students to exhibit how well they are learning.

Second, the unit plan utilized different teaching and learning strategies. Strategies such as inquiry learning, group collaboration, and project-based activities were used to promote student engagement and understanding. The different inquiry lessons in the unit provided an opportunity for the students to learn using inquiry and research to build their social studies content knowledge (Alberta Learning, 2004). Using questions to guide inquiries, the lessons prepared for

this study used story maps to support the content students learned in the unit. Students used the information from story maps to answer several geographic and historical questions.

Project-Based-Learning (PBL) provides students with opportunities to find out about real-world problems and find several ways to solve them (Harada, Kirio, & Yamamoto, 2008). Project-based learning activities also allow students to work in groups, which foster social interactions amongst themselves, while developing cross-curriculum skills. It provides an opportunity for interaction because they perform the task as a group. The PBL activity employed in this study allowed students to use the information they learn to engage in deeper levels of understanding. The lessons allow for the integration of other disciplines and meet the needs of learners with different learning styles (Barron & Darling-Hammond, 2012). Finally, using group collaboration as an engagement strategy in the lessons helps to foster positive relationships. Students learn from each other, problem-solve, and made decisions as a team (Kauchak & Eggen, 2007).

The project designed for this unit was a performance task that required the students to map historical heritage sites that are significant to the people of Mississippi. The G.R.A.S.P.S. which stands for "Goal, Role, Audience, Situation, and Performance, Standards" (Wiggins & McTighe, 2005, p.157) was used to present the project to make it more authentic and engaging. Students were given an assignment to use a spatial narrative to describe specific historical locations (goal). The project required students to be historians and geographers (role) working on a project for members of the Native American Historical Society (audience). The authentic context for the task (situation) required them to create a story map (product) to explain the historical significance of the points on the map to museum visitors.

Additionally, the unit combined history and geography to create geo-historical inquiries that brought place and time together. When teachers incorporate geography and history, it brings history to life and fosters a deeper appreciation for history and geography (Dailey, 2004). It also deepens the learning experience of the students because they are encouraged to use geographic data to answer both historical and geographic questions. The standards, learning objectives, materials, and the topic were prepared with the help and guidance of the cooperating teacher. All the lessons were taught by the cooperating teacher, while the researcher observed and provided technical assistance to the teacher.

Lesson Unit Implementation

Before the study students were exposed to story maps designed by the Environmental Systems Research Institute (ESRI). The students were exposed to ArcGIS and the teacher walked the students through setting up their free ESRI accounts. While the short inquiry lessons served the purpose of introducing students to the concept of story mapping, the unit designed for the data collection allowed students to take mapping a step further by encouraging the students to create and use GIS story maps to describe a historical event. Table 1 on the next page provides details of the procedure for lesson implementation:

Table 3.1: Lesson Implementation Procedure

Table 1

Lesson	Activity	Data Collection Method
Day 1: Lesson 1	Brainstorming, Inquiry learning, questioning and discussion	Observation and reflection 1
Day 2: Lesson 2	Content discussion, explicit instruction using story maps, classroom discussion, and 3-2-1 activity	Observation and reflection 2
Day 3: Lesson 3	Character quote, content discussion, questioning activity	
Day 4: Lesson 4	Analyzing cause and effects, creating map layers	Observation and reflection 3
Day 5: Lesson 5	Project introduction, students create story maps	Observation and reflection 4
Day 6: Lesson 6	Students work on creating their story maps	Observation and reflection 4
Day 7: Lesson 7	Students present story maps	Reflection 5, interviews

Notes. Indicates the lesson unit implementation schedule of activities and types of data collected

For the duration of the unit of study, the students sat in groups of four (Appendix E). All assignments and instructions were uploaded on to Schoology by the teacher. Schoology is an online instructional management system used by the school district to share instructional content with students. Each lesson covered a class period of 51 minutes.

Data Collection Methods

To determine how eighth-grade students perceive their engagement when they learn social studies using GIS-story maps, the researcher employed different types of data collection methods. During the data collection period, classroom observations, student-written reflections, and student interviews served as the primary methods of data collection.

Classroom Observations

Observations provide opportunities for researchers to directly understand and experience the phenomenon by observing people in their natural setting through the five senses of the observer (Creswell, 2013; Hammond & Wellington, 2013). The observation checklist designed for this study contained indicators that describe the physical manifestation of engagement and disengagement (See Appendix F). Students were checked as engaged or disengaged if ten of the fourteen participants displayed any of indicators in the checklist. To guarantee an unbiased report of the observation, two additional graduate student observers were engaged and trained by the researcher to observe the students. This addressed the problem of reliability and researcher subjectivity. For the duration of the study, a total of five observations were conducted over a five-day period. This generated a total of seventy-five cycles conducted by the researcher to gather evidence on the students' level of engagement and to learn about the norms and practices of the students. The researcher collected the first observation data during lesson one. The second observation occurred while the teacher taught the second lesson. The third, fourth, and fifth observation took place when students used and created their story maps. As the observations were conducted, probing questions for individual students were generated based on how the students reacted to the content of the lessons.

Student Written-Reflections

Written reflections served as an interactive research tool for the research participants. It opened up a means for students to scrutinize, question, and assess their experiences as they developed new meaning. It provided a medium for the participants to answer questions about the phenomenon, and an "effective way of using students' variation in experiences to evaluate a

teaching/learning context" (Trigwell, 2006, p. 371). Following each lesson, students completed a short reflection activity. The reflections not only served as a way to assess how students see their learning, but it also acted as a way of triangulation, which involves using different sources to check for data validity (Creswell, 2013; Golafshani, 2003). The students responded to some of the interview questions (Appendix G) designed to get them thinking about how they learn social studies using story maps and to give insights on what they are thinking. The student participants wrote the first reflection after the completion of lesson one. The second reflection activity was written after the completion of lesson two. The third, fourth, and fifth reflection activity was completed by students after they used and created their story maps. At the end of the lessons, students assessed the questions as a Google Form document on Schoology.

Student Interviews

Interviewing is the most commonly used data collection method in phenomenographic studies (Larson & Holmstrom, 2007). They are useful ways to gain insights into the experience of the participants. They also allow researchers to understand the real-life experience, of the participants (Seidman, 2013). By using semi-structured interviews, researchers attempt to guide the conversation by using questions to get a good idea of topics covered during the interview (Fylan, 2005). During the semi-structured phenomenographic interviews, a set of interview questions (Appendix H) was used to explore how students perceive their engagement using story maps in the classroom. Based on the knowledge obtained during the observations and written reflections, probing questions were asked to understand what the students were thinking during the activity.

After the two-week period, students participated in a semi-structured interview. The interviews, which were done over a three-day period, occurred after the participants had presented their story maps. The interviews took place in a quiet section of the school library, and a total of fourteen eighth-grade students along with the teacher were interviewed. Fourteen participants were selected for the interview to enable the achievement of a range of variations in experiences while remaining manageable (Khan, 2014; Trigwell, 2006). Because the participating teacher was not a major contributor in the study, the teacher preferred the questions sent as an email. With the approval of the student participants, interviews were voice-recorded and transcribed for analysis. Before the interviews, the participating school, teacher, and students were assigned pseudonyms to maintain confidentiality. The participants were also asked to complete a generic release form (Appendix I) before the interviews were conducted.

Data Analysis

The data analysis process began with the organization of the observation data. First, the reports from the observations were organized into a matrix explaining the different classroom events. The matrix explained the different class activities and the number of students that were engaged or disengaged during each activity. Second, the participant's reflective responses were downloaded from Google Docs into an Excel spreadsheet. Third, the audio recordings from the interviews were transcribed verbatim by the researcher into a Word document.

The general inductive analysis of the observation, written reflections, and interview data involved reading the raw data to identify themes. The inductive method of analysis involves "using detailed readings of raw data to derive concepts, themes, or a model through interpretations made from raw data by an evaluator or researcher" (Thomas, 2006, p. 238).

Induction analysis allows researchers to learn and use what is available in the data to make connections, generalizations, and to develop an interpretation about the experiences that are available in the raw data. For this study, the research questions served as a guide for the analysis. The analysis involved searching for themes within the data that captured variation. The data analysis followed the seven steps below as outlined by (Khan, 2014; Sjöström & Dahlgren, 2002).

- **Step one: Familiarization**: Reading and re-reading the observation data, the written reflections, and fourteen interview transcripts several times.
- **Step two: Compilation**: Line by line reading, analysis, and compiling of answers from certain questions to identify the significant elements. This involved first using Vivo coding to capture words and phrases by using the language of the participant's to "prioritize and honor their voice" (Miles, Huberman, & Saldana, 2014, p.74). The compilation of data also involved process coding using gerunds to show action (Miles, Huberman, & Saldana, 2014). The coding of the data required the use of the excel software, which enabled answers to be grouped under the questions and further analyzed for existing relationships.
- **Step three: Condensation**: The codes were condensed to extract relevant information pertaining to the study. The data was reduced to find the core parts of the participants' responses.
- **Step four: Preliminary Grouping**: Initial grouping was done to locate and classify similar answers.

- **Step five: Preliminary Comparison**: Comparison of categories using pattern codes to identify, compare, and group the summaries into a smaller number (Saldana, 2009) of variations of descriptions.
- **Step six: Naming**: The different classifications were named to emphasize their meanings.
- **Step seven: Outcome Space**: The outcome space is described using a diagram to discuss the relationships between the categories of description.

After conducting the initial coding, the researcher categorized and grouped into larger themes. To answer the research question one, the researcher developed a total of fourteen categories of description, which was further narrowed down to ten, and then four specific categories, all of which captured the core information reported by the participants in the study. To answer research question two, a total four categories emerged from the codes. They were further reduced to three categories. The different descriptions derived from the data analysis were used to explain and develop a model to answer the research questions and the outcome space.

Sustaining the Objectivity and Accuracy of the Investigation

Several protocols were put in place by the researcher to preserve the objectivity and accuracy of the research. First, before the research was conducted, a pilot test was used to check the interview and reflection questions for credibility. The pilot test was also used to address any technical issues and requirements. Second, the researcher developed and used an observation protocol during classroom observations. Additionally, to ensure an objective report of the observation (Dewalt & Dewalt, 2011), the researcher and two graduate researchers observed the students as the teacher taught the lesson. After the lesson, the researcher and the observers

reviewed the observation checklist to corroborate the validity of the information that was gathered from the observation. This addressed the problem of researcher subjectivity and the difficulties of documenting what is happening in the classroom. The third protocol put in place involved triangulation using different data collection methods to ensure data validity (Creswell, 2013; Golafshani, 2003) (for example, using student written reflections). Fourth, a result of the data analysis was shared with a qualitative research expert to determine if the categories and themes are in agreement with that of the researcher.

The researcher also kept a self-reflection journal of daily goals, expectations, assumptions and reactions before, during, and after the study. The notes were used during the study and analysis to check for researcher reflexivity and subjectivity. Lastly, the research and results were supervised by experts in the fields (dissertation chair, committee members), who revised and provided valuable constructive feedback throughout the course of the study.

Problems and Challenges

Several challenges were encountered during the implementation of this project. First, although the students approached for this study were enthusiastic about being in the study, several of them could not be part of it because they forgot to get their consent form signed by their parents. To help recruit more students to take part in the study, the participating teacher had to send reminder messages home to get parental approval in order to participate in the study.

Technology issues' relating to internet problems was also a challenge during the implementation of this study. Even though the researcher and participating teacher did a check to make sure all the links, map layers, and the internet were working properly, several students had problems with saving and retrieving the pins they created on their story maps. To solve this

problem, the participating teacher had to make sure students were properly saving after making their entries, and encouraged students to problem-solve and to help members of their groups who were having problems.

Conclusion

The concept of student engagement is an important factor in school success and academic achievement. The researcher expects that the final product of this research will share information on how students experience learning social studies with the aid of GIS-story maps. Listening to the voices of students on how they make sense of their learning experience using GIS-enhanced instruction is a major step towards understanding how teachers teach, and the impact on engagement from the perspective of students. Since GIS is new in the K-12 curriculum, additional research will help provide additional insight regarding whether students perceive themselves as more engaged when used as a teaching tool. Finally, the study will assist in determining if there is a relationship between classroom applications of story maps and their lives.

CHAPTER IV

FINDINGS

The investigation is based on data obtained from 14 students in an eighth-grade social studies class using observations, written reflections, and oral interviews. The study was designed as a phenomenography to answer the following research questions: (1) How do eighth-grade students perceive their engagement with social studies when it is taught using story maps? (2) How do eighth-grade students perceive the relationship between GIS-story maps to their own life?

Based on observations, student written-reflections, and oral interviews a total of seven categories of description emerged from the data to answer the two research questions. For research question one, four categories of description were identified to describe the different ways students perceive their engagement when they learn social studies using story maps: *generating inquiry*, *visualizing information*, *mapping interactively*, and *cycling*. For research question two, the three categories of description identified are: *geographic connection*, *cultural connection,* and *beyond the classroom.*

This chapter is made up of the following three sections: The participants, evidence and themes of the observations and the anatomy of experience revealed. The first section introduces the personalities of the participants using the pseudonyms; the second section provides the evidence from the observation of the students. All the student participants were observed for the entire duration of the study, and the results of the observation reflected their levels of

engagement when the participating teacher taught the GIS-enhanced lessons. The third section discusses the anatomy of the experience. It reveals the *what, how, referential,* and *structural* aspects of learning. The *what* represents what students think about their engagement when they learn social studies using story maps; the *how* reveals how the task is carried out. The *referential* aspect explains the meaning of the experience, while the *structural* aspect highlights the understanding that students derive from using story maps (Booth, 1987; Khan, 2014).This section also provides a graphic representation of the outcome space, which explains the collective experiences of the participating students and the relationship that exists between them (Yates, Partridge, and Bruce, 2012). Chapter four also includes a discussion on the additional results that emerged from the study.

The Participants

Fourteen students agreed to take part in this study. They varied in gender, ethnicity, and interests. The following are paraphrased comments from the students:

1. Bella is an outgoing student who likes school because it provides an opportunity for a better life. She is engaged when she works on projects and when she presents them to her classmates.
2. Irene enjoys learning interesting things. She loves hanging out with her friends and is engaged when she is following the teacher's directions, listening, and trying to understand the lesson.
3. Marty enjoys making new friends and learning everything he can in social studies. When Marty is engaged, he pays full attention and answers any questions asked by the teacher.
4. Paul is a dynamic student. He is engaged when he is quiet and focused.

5. Zach likes learning and socializing with his friends. He is engaged when he completes and turns in all his assignments.
6. Ashley loves color guard. She also enjoys her world geography class because she can learn about the different places on earth. Focusing on and learning interesting topics gets her motivated in the classroom.
7. Just like Ashley, Ellen loves learning about new and exciting things. She is engaged when she hears exciting information and sees pictures that catch her interest.
8. Dan likes classes where the teachers interact with the students on a regular basis. He likes to work collaboratively on projects and enjoys lessons that allow him to interact with his teachers.
9. Vivian likes to work hard because she wants to keep her grades up. She is engaged when she behaves herself and concentrates on her school work.
10. David loves hanging out with his friends. He also loves math, band, and playing music. He is engaged when he understands the content well enough to help others learn.
11. Bridgett is engaged when she works on science projects. She has an outgoing personality and loves talking and hanging out with her friends.
12. Josh likes working with his classmates. He is a quiet young man who likes to be consistent and meticulous.
13. Janet loves her English Language Arts classes. She is passionate about speech writing and enjoys learning about new and exciting things.
14. Wesley likes discovering new things. He likes his strength class and fun lessons and is engaged when he learns exciting things.

The Evidence of the Observation

The data from the classroom observations provided information on the students' level of engagement when the participant teacher taught the GIS-enhanced lessons. All of the student participants displayed how the story mapping activities affected their engagement during the period of the study.

On the first day of observation, there was a clear indication of engagement as the students worked on their class assignment of reading and transferring information from the story map to a paper map. It was evident that the students were interested in the activity as they worked together and answered questions using the story maps. At the end of the class activity, however, the student-participants seemed less engaged as they waited for further instructions from the teacher. When they started their closing activity, they appeared to control their behavior as they worked on completing their exit activity.

There was strong evidence of both active engagement and disengagement on the second day of observation. During the first cycle of observation, the teacher reviewed the previous lesson using the *Natchez Trace Parkway* story map on the screen, 10 out of the 14 participants were actively engaged in the lesson. The teacher continued the lesson using the textbook during the second and third observation cycle. Although 10 of the 14 participants seemed engaged, four displayed off-task behavior such as looking around, talking, and not showing active interest in the lesson. Students were then asked to read a paragraph from the textbook during the fourth observation cycle. While some of the participants worked on completing their assignments, five of them looked bored and displayed various forms of off-task behavior. There was clear evidence of engagement during the last observation cycle. Students were asked to work on a 3-2-1 exit

activity. Thirteen of the fourteen participants were engaged as they focused their attention on working on the task.

There appeared to be a lack of concentration on the third day of observation as the teacher reviewed the lesson from the previous day. During the first observation, 10 of the 14 students were looking around the classroom as Mr. Webb reviewed previous information using questioning techniques. He then introduced students to creating layers using ArcGIS. He showed them how to add and remove layers and explained how different layers could be used to learn about different information. Students were very engaged during the third cycle of observation when the teacher asked the participating students to work on creating their individual layers; a high level of engagement was evident. The students were attentive and focused as they interacted with their maps and asked content related questions.

The fourth and fifth cycle of observation witnessed a decrease in engagement, as eight out of the fourteen student participants seemed to be experiencing problems with the story maps. Mr. Webb had to refer students to the directions several times, and in some cases had to project the instructions on the screen. When the researcher asked the teacher why the students were having problems with their maps, he said that the students were trying to figure out the maps on their own instead of reading the directions. The researcher also asked the students about their thoughts as they were working on their story maps during the interview, and one explained that though the directions were straightforward enough for her to understand, she wanted the teacher to model how to use the maps.

On day four of the observation, the students were asked to create a map using ArcGIS. A high level of engagement was visible during the first observation as the students followed the teacher's directions and looked interested in the activity. During the second observation, the

teacher projected the story map on the screen and showed students how to navigate the different features of the map (model instruction). Using their computers, the students follow the teacher's directions. All 14 students were engaged. Students worked independently on their own during the third and fourth observation cycle, while the teacher circulated the classroom to attend to students that had questions. 13 out of the 14 participating students were assisting each other and problem-solving. During the rest of the 4th observation cycle, 14 students were engaged and continued to work on creating their story maps, while the teacher provided assistance and answered specific questions.

On the fifth day of observation, there was a high level of engagement as the fourteen students continued to work on finishing their story maps with the teacher providing assistance and answering specific questions. The evidence of observation is presented in Table 1.

Table 4.1: Evidence of the Observation
Table 1

Lesson	Cycle 1	Cycle 2	Cycle Activity	Cycle 4	Cycle 5
Day 1	Students worked and finished their bell ringer activity **All 14 students engaged**	Students worked on their mapping activity. Students transferred information from their GIS map on to a paper map **All 14 students were engaged in learning**	Student answered questions using ArcGIS maps. Students worked together, problem solved, asked content related questions, and had on-task conversations. **All 14 students were engaged in learning**	Students worked on their computers. Some students were looking around. **10 of the 14 students were engaged**	Students worked on the class assignments and closing activity. Students interacted with the devise, and were interested in the activity. **All 14 students were engaged in the class activity.**
Day 2	The class started late	Lesson review using Natchez Trace GIS map on the screen. **10 out of 14 students engaged.**	Teacher discussed the Natchez Trace. Textbook activity and teacher lecture. 4 students displayed off-task behavior like looking around, listening, but not	Students were asked to scan and read a paragraph from the textbook. Some completed their assignments, others looked bored.	Students worked on a 3-2-1 exit and reflection activity **13 out of the 14 students were engaged and attentive.**

			showing active interest. **10 out of the 4 students were actively engaged in the lesson.**	**5 students out of the 14 were disengaged**	
Day 3	Teacher reviewed previous lesson. There seemed to be a lack of deep concentration. **10 out of the 14 students were disengaged.**	Teacher used questioning techniques to review information. Students started working on their maps. **12 out of 14 students were engaged.**	Students were individually working on creating layers using ArcGIS. Some students finished on time and started talking. **12 out of the 14 students were engaged.**	Students worked independently on their maps. They had a lot of questions for the teacher. **8 out of the 14 seem to be having problems following the material.**	Students continued to work on their maps. Students had more questions to ask the teacher. **The teacher provided one on one instruction for students that had questions.**
Day 4	Teacher reviewed the previous lesson. Students were asked to create a map using ArcGIS. Students followed directions and were interested in the activity. **All 14 students were engaged in the lesson**	Teacher directed instruction on how to create story maps using ArcGIS. The teacher projected the map on the screen and showed students how to navigate the different features of the map (Modeling instruction) Students followed the directions of the teacher using their own computers. **All 14 students were engaged.**	Students worked independently on their own while the teacher circulated round the classrooms to attend to students that had questions. The students were also assisting each other and problem solving. **13 out of the 14 students were engaged.**	Students worked independently on their own while the teacher circulated round the classrooms to attend to students that had questions. The students were also assisting each other and problem solving. **13 out of the 14 students were engaged.**	Students continued to work on creating their maps. **All students were engaged.**
Day 5	Students worked on finishing their story maps with the teacher providing assistance and answering specific questions. Students, who quickly learned the basic story mapping skills, were asked to	Students continued to work on their map. They were actively involved and continued to ask content related questions. **All 14 students engaged.**	Students continued to work on their map. They were actively involved and continued to ask content related questions. **13 out of 14 students engaged**.	Students continued to work on their map. They were actively involved and continued to ask content related questions. **13 out of 14 students**	Students continued to work on their map. They were actively involved and continued to ask content related questions. **13 out of 14 students**

	help other students in their group. **All 14 students were engaged.**			**engaged.**	**engaged.**

Themes from Classroom Observations

Data from the classroom observations revealed four themes that demonstrated active student engagement. The topics are as follows: (a) possibilities for hands-on learning, (b) possibilities for problem- solving, (c) possibilities for social interaction, and (d) teacher instructional strategies.

The active, hands-on mapping activity made the lessons more engaging for most of the students, who focused and interacted with the story maps. While some of the participants tried to figure out the maps on their own, others followed the step-by-step directions provided by the teacher and were able to share their knowledge with their group members. Students demonstrated different ways of interacting with story maps because the nature of the activity allowed students to construct individual knowledge and problem solve. For instance, while some students helped their peers to ascertain answers to questions, others assisted in mastering out how to save the information they were adding to their story maps. Encouraging students to create their story maps led to increased engagement because they were actively involved in inquiry, creating a product, and finding solutions to problems as they worked on their story maps.

The instructional strategies used by the teacher were also a factor in promoting engagement of the participating students. For example, there was evidence of increased engagement when the teacher directed and modeled instruction. There was also proof of engagement when the teacher showed students how to navigate the different features on the map on the projection screen. The various strategies including students' use of technology, providing

fun and excitement, using humor, one-on-one instruction, inquiry learning, group interaction and problem-solving created a student-centered environment that increased the engagement of the student participants. Notwithstanding the high levels of engagement displayed by the students, there were examples of situations where students demonstrated high levels of disengagement. Examples include when the teacher spent time lecturing and when the students seemed to be experiencing problems with saving their maps and wanted the help of the teacher.

The Anatomy of Experience: The *What* Aspect of Learning

Students' perception of their engagement using GIS-story maps will be revealed using the "anatomy of experience" (Marton & Booth, 1997). The "anatomy of experience" refers to the multiple ways participants experience a phenomenon. They consist of four different aspects, namely: the *how*, *what*, *referential*, and *structural* aspects. While each participant may have different perceptions of engagement, there were also several commonalities in how the students perceived their engagement when they learned social studies using story maps.

Research Question Results

Data analysis to answer the two research questions revealed that students had four and three different perceptions for research question one and two respectively. The ordering of the categories does not suggest one is better than the others, but it reflects their understanding from the simple recall of information to the application of knowledge. Each category of description is elaborated with the participants' responses to highlight the qualitatively different ways students' perceive their engagement with story maps. At the beginning of each quotation, a pseudonym was used to keep the participants anonymous.

Research Question 1

How do eighth –grade students perceive their engagement with social studies when it is taught using story maps? Four categories of description emerged from the data.

Category One: Generating Inquiry

Generating inquiry refers to story maps' ability to promote inquiry-based learning to trigger curiosity. Participants identify the different map layers as a source of inquiry, research, and information that will help to answer specific social studies based questions. The students also compared the story maps to the other sources of information they use in social studies, namely lectures, textbooks, and worksheets.

The researcher asked all the participants the following question to ascertain their level of engagement: Do you feel you were engaged in learning at any time during the past week, why and why not? The four recorded responses below show that students were engaged with story maps as a source of generating inquiry for several reasons. Bella, Ashley, and Janet, for example, perceived story maps as an engaging research and learning tool.

> Yes. Seeing how you can research different stuff.

> Yes. It was really fun how I could like search up any place, and it will just go right to that place. I can find out and search information about that place, and then I can learn a lot instead of just going through the book and stuff, and then you can get a lot of pictures so you can understand.

> Yes because the project we did, I learned a few things.

Two other participants, Marty and Wesley, perceived story maps as a different source of generating inquiry other than lectures, textbooks, or a worksheet.

> Probably so, teachers do a good job of giving us examples of what to do and doing different fun stuff instead of just doing worksheets all the time I guess.
>
> Yes, I liked story maps because you can get creative and it is not straight out of the book.

When students engage with story maps, they can access the material within the story maps. From category one (Generating Inquiry), students who experienced story maps looked at story maps as a one-stop point of finding information. The recorded response from the students above show a positive correlation between the uses of story maps for inquiry-based learning and overall student-engagement. Additionally, these students perceive story maps as engaging because they offer a different and more extensive source of gathering and explaining information than the other sources of information they use in their social studies classrooms.

Category Two: Visualizing Information

In this category, story maps are engaging because they show information. Here, students bring the visual components of using story maps into focus. Story maps allowed the students visualize and to learn more about specific locations on the surface of the earth. While category 1(Generating Inquiry) suggests using story maps to find information, here the visual representation and images is seen as engaging for visual learners. David and Marty explained:

> I am more of a visual person anyway, so a way for me to visualize. It helps me learn better.
>
> I am a visual learner, so it helped a lot seeing where everything was.

Story maps are engaging because they show information and details to learn about specific areas. Ellen, Irene, and Paul described evidence of their engagement with story maps.

> It shows you where stuff was in digital. It's like you can see it.
>
> It showed us where these things actually happened. It just like showed us better.

> You can look in all different parts of the world and see an accurate map of what the streets and buildings are like.

As evidenced by the responses above, the students who experienced story maps as a visual learning tool saw actual images, which engaged and aided them in learning in social studies.

Category Three: Mapping Interactively

In this category, the participants' perception of story maps is based on their uniqueness and the different ways users can interact with the maps. While the first category involved using story maps to retrieve information, and the second category allowed students to see the precise location of places on the map, the third category enabled students to recognize the importance of story maps as an interactive tool for learning. Story maps are engaging because users can interact with the maps. Ashley, Josh, and Wesley explained:

> It was good because we could add layers, increase the pictures to see what it looked like and just putting the pins on it and stuff.
>
> Pretty good. It allows you to interact with the things inside of it like the layers and all that.
>
> Yes. It's been able to do all the different stuff instead of just looking at the map where you could add layers and stuff. I really like that.

While most of the participants represented in this category describe story maps as interactive, some mention the creative advantages of using story maps to organize and present information. Story maps are seen as engaging because they can edit make their own maps. Ashley, Bella, and Ellen described:

> My most favorite part about it was where I could like go to any place and stuff and then pin that out and put some notes right there. Then I can just search it again and then have pop-up notes on it.

> I was thinking that I kind of like this. It was because; it is not like any other maps. You can actually save it, and you have your own thing, you can do anything to it. You can like change the basemaps to different contents and stuff. You can like add layers and stuff.
>
> Instead of seeing where this is or where that is, you can make your own, which was fun.

In this category, story maps are different from other sources of information used in social studies classrooms. Students learning using story maps with the worksheets. Marty described why he finds story maps more engaging than worksheets.

> I like them just because it would be easier than just doing the worksheets. I felt that doing it on the computer made you more engaged into it, like you had to make it yourself. It wasn't just like here is the map, here are the points. If you make it you will probably remember it better. There is something about making on the computer instead of drawing it out on like a piece of paper.

The descriptions provided in this category by the participants are more aligned with the *how* (*structural)* aspect of learning. The structural aspect of learning addresses how students go about understanding how to interact with the story maps. Here students focused on the features provided to edit the maps: adding descriptions, creating points, and making their own maps. The students emphasized knowing where places are and what they looked like for the purpose of learning and understanding. The students perceive story maps as engaging them in learning social studies because they can interact with life maps and create maps to tell their stories and present social studies content.

Category Four: Cycling

The focus of students' perception in category four was cycling to develop an understanding of how to use the story maps. Here the importance of student cognitive engagement is recognized. Story maps are new, and strategies must be used to help them develop

a much deeper understanding of interacting with the maps. Student engagement with story maps in this category is threefold. First, the challenge of using story maps for the first time, personal intrinsic motivation to develop an understanding of using story maps, and those that consider story maps disengaging. The two statements by David and Janet below reveal the primary challenges confronted by the students:

> I was wondering how I was going to pull it off, how, and wonder if I really understand it.
>
> It was sort of hard, sort of confusing because like you have to click like different buttons and then you have add on and all that. And then you get a little confused because people don't know where the buttons are and then it gets a little complicated, and it gets a little confusing.

The extract from Irene below indicates and explains her engagement. She also provided an insight on the challenging and positive aspect of using story maps for the first time.

> Irene: Yes. I got a little confused, but Mr. Webb was good at explaining it and helping me understand. The directions were pretty simple but I just didn't understand for a weird reason, and I had to get him to like explain it better.
>
> I have never done it before, but for the first time, it wasn't that bad. And it was like it helped a lot with learning. It was like difficult to understand sometimes. It showed us where these things actually happened. It just like showed us better.

Here, engagement is no longer determined by the cognitive ability to engage with story maps. Student engagement is explained by Bella, Paul, Zach, Ellen, Dan, and Bridgett as an intrinsic motivation

> While using the maps what I was thinking was that hmm this is a lot of work, but it is a better way of doing work than getting out of a textbook or something. It's a better work because we have the internet to use, and the internet can tell you a lot of things, some things can be true, some things can't. And you just have to research. It's a lot of work, but at the end, it helps you get a better grade and all.
>
> Yes, because I do feel like I was really trying to get my grades up before report card.
>
> Yes, because like I worked hard to get it done.

> Yes, I was engaged when we talked about the Natchez Trace. Like I have family there, and I want to know what happened to the Indians and stuff.
>
> Yes I do. Because my grades are starting to improve a little bit more which I'm trying to get all A's again. Just trying to get the best of my ability.
>
> Yes. I've been trying to pull my grades.

In addition, this category indicated that students used a variety of strategies to engage with story maps. Here, the importance of student psychological engagement is highlighted and engagement is seen in terms of persevering and figuring out the maps as explained by Ashley, Wesley, Josh, Marty, Vivian, Bridgett, Zach:

> The first time when I started doing it, I thought that it was not going to be what I liked, but afterwards like few days later I started loving it, like doing and stuff. It was really fun.
>
> At first, I was kind of questioning it, but then as I got into it I was like men this is pretty easy, it is easy to learn with.
>
> At the very first I didn't know what I was doing. I was waiting for instruction like what to do and all of that. I caught on really quickly, and I was able to do all of it. My brain was like oh what's going on and later on I was like do this do that. I was thinking like is it good? I thought it was going to be good at first because like helping you doing your study and using this thing. I was like this is going to be great.
>
> They were a bit confusing at first, like doing like different steps at first. Like I said, am a visual learner so it helped a lot like seeing where everything was. So I like them even though they were hard to make, but after like you made them one or two times they are pretty easy.
>
> I feel sometimes it's easy, sometimes is hard. The stuff we are doing now its okay, but I messed it up a little bit but I am fixing it right now so is okay.
>
> They are easy to use a lot of times, and they are kind of easy to navigate because of the website you use.
>
> Well at first I thought it was going to be hard, then I found it to be a bit easier when I like learned how to use everything.

Story maps is also viewed by some students as disengaging. In this category, students consider story maps disengaging based on their experience with using technology, and how they feel about social studies. Vivian and Dave explained:

> Not really, because I am not used to this technology stuff because I need some help.
>
> Not so much. I understand it and kind of not understand it. Like how we go way back when to this. I watch the news and listen. I do like social studies, but there are certain things I can't understand and relate to.

In brief, students in this category showed a broader experience of using story maps as a learning tool. In figuring out how to use the story maps, students at first perceived story maps as confusing, difficult, and time consuming. Notwithstanding the difficulties students experienced with learning how to use and make story maps, they recognized that the technology was new and were able to problem-solve as they learned how to use story maps. Therefore, student perception of their engagement in category four, not only implies the overwhelming and confusing problems of using a new learning technology, but the importance of using effort and perseverance as a yardstick for determining student engagement in learning activities.

The "How" Aspect of Learning

The *How* (*referentia*l) aspect of learning refers to the learning students gained from using story maps. Students referred to the experience of using the maps, stories, and visuals to learn social studies. During the interview, participants were asked to answer the following question: During the past week tell me one thing you remember from story maps. Their answers offer insights into the metacognitive process that students go through during the leaning process. Here, student' engagement with story maps is in threefold. Bella, Irene, Ellen, Dan, David, Wesley, and Janet perceived story maps as a tool for learning social studies content:

> From story maps, I remember that it shows you the trails that go through Mississippi. You can tell what parts you can go through and what part you can't.
>
> I remember having to have changed the setting, and trying to find the line of the Natchez Trace.
>
> I remember that the map we had looked over on it, and it showed us the places on it that were significant.
>
> The stops along the way. The Devil's Backbone.
>
> I remember the Natchez Trace.
>
> I remember showing the Trail of Tears on story maps so you could see their route for yourself.
>
> They walked a lot of miles.

Secondly, Irene, Marty, Ashley, Bridgett, and Josh provided examples of mapping skills they performed while engaging with story maps.

> I remember him telling us how to put some filters on it and like showing us how to put the points and telling us how to put information and pictures on there.
>
> I remember a Confederate grave site, one point I did. It was like a large gravesite near the Natchez Trace.
>
> I remember when we had to test it out and stuff. We could like make the map look different, you can change images to look like regular maps on a globe and stuff, and you can make it look like the real world, and you can zoom in and you can see what's on there.
>
> I remember how to like add a layer, take off layers and kind of navigate around it.
>
> I remember the points, the lines; you can add a description and title; add a picture, you could also add and change the basemap thing.

Thirdly, Paul, Zach, and Vivian perceived story maps as engaging because they can be used as a tool for researching information.

> I remember trying to look up all these different places that I have never been in and trying to look up this information from my friends.
>
> I remember that like you can find a pin in the map and it will tell you all about it.

> Oh well, looking something up and it going to it really fast. That's what I like. Like if you zoom in you can see it better.

Based on the categories of description discussed above, participants believe that story maps offer them a new way to learn social studies. Students saw story maps as a source of information and visual data. They perceive story maps as engaging because it increased their ability to learn social studies. The summary of the referential and structural aspect of each of the categories is presented in Table 2 on the next page.

Table 4.2. **The Referential and Structural Aspect of Student Engagement Using GIS-story maps**

Table 1

Categorization	Referential Aspect (What story maps are perceived as)	Structural Aspect (How story maps are perceived)	Point of Attention
Generating Inquiry	Story maps as a source of inquiry and research Story maps as a source of information	More extensive source of researching relevant information As a one point stop for researching information. Different from textbooks, lectures, and worksheet	The focus is on clicking a point to find out relevant social studies information.
Visualizing Information	Story maps are visually appealing	Imagery to answer specific social studies questions. Details of specific locations.	The focus is on seeing images, details and visualizing questions.
Mapping Interactively	Story maps are different	Interactive Making story maps Editing maps	The focus is on the interactive advantages of story maps.
Cycling	Story maps are new	Confusing Challenging Easy with time Fun Disengaging	The focus is on figuring out story maps, and learning how to use them.

Research Question 2

How do eighth- grade students perceive the relationship between GIS, story maps to their own life? Three categories of description emerged from the data analysis. The findings are presented below.

Category One: Geographic Awareness

In this category, students perceived a connection between their lives and story maps because they can be used to build their geographical awareness. The emphasis here is on using story maps as a geographic tool. In this category, the participants perceived two main reasons to use story maps. First, students saw story maps as a device to locate and find directions, and second, as an instrument for learning geography. Within this perspective, Bridgett and Dan focused on the opportunity provided by story maps to find different locations and directions.

> Well, you might need maps to like find something like directions you know.
>
> They connect to our life by showing where you are kind of thing. It's a map, so it tells you your location, everything. It's a GPS system so it can help you that way if you need that.

Students also perceived a connection between story maps and learning geography in this category. Students can use the maps to see both the physical and political features of any location on the earth's surface. Bella and Bridgett described the connection between their lives and story maps:

> It connects to my life with letting me know that if I go to one spot place I know how it was built, and how it looks like from a map.
>
> If you are doing it in a project, you might need like in geography. If you need an address or something you might type it in and find it.

The explanations provided by the students aligned more with spatial awareness. The students can see exact details that helped them make geographic connections with the world around them.

Category Two: Cultural Awareness

In category two, students perceive a connection between GIS story maps and culture. The focus of this perception is the ability to locate and see places related to their culture. Because students used story maps to discover real-life cultural and geographical phenomena, they become personally invested in the lesson-especially when their findings focused on their home, family, culture, or neighborhood. When students are given the tools to locate places around the world that link to their cultural heritage, they continue to connect with the story maps. Paul explains how this connection occurs:

> I can search; I can see buildings that relate to my culture.

Students also see a connection between story maps and history. For instance, Zach, Ellen, and Wesley can use story maps to research and see details of places connected to historical events:

> Like you find historical places and their significance.
>
> It connects to my life because I mean you think about it, it's like you see the places, where it was, what they did and all that stuff.
>
> It connects to my life because it happened in the past and the time before me.

Here, students concentrated on the concept of time and place. The students understood the advantages of learning about their culture and history from a geographical context. They focused on the features provided in the map to find locations, places, and the information contained in the story maps. By describing the various ways they interact with historical and cultural information from the story maps, the participants perceive a connection between story maps and their lives.

Category Three: Beyond the Classroom

In this final category, the use of story maps is connected with the application of knowledge of story maps outside the classroom environment. In this context, students highlighted going to places and telling people about story maps. The dialogue by Janet, Vivian, Marty, and Josh below indicates how this relationship occurs:

> Like going to other places.
>
> It connects to my life because of the states… I like to visit places.
>
> Just zoom in then I can see what's in that place, then I can say to myself, maybe I wanna go there sometime.
>
> Story maps connect to your life because I can see like, I mean and could go to these places, and it's not just some random thing. If I wanted to go to these places, I could drive up there and like go see. Like this is one point I did. You can see where everything is and so it's not just like typically when you write notes and saying this is the notes of what happened. Because of the maps, I can physically go there. I think it's cool.
>
> You could use them to like plan trips or something. I could tell people about the story maps or something like that. I would probably go on using them in future things even if I don't use images. Like, I will probably like read history books or something and then use what I remembered to make a map out of it or something like that.

The student responses provided above indicates a connection between story maps and the lives of the students. For this group of students, the application of knowledge to different life situations is their emphasis. The participants can make a connection between the information and images on the story maps and their aspiration to visit those places. They also can associate story maps with future tasks and projects like making story maps out of the information they get from books. The students connected story maps to different life situations, and the relationship between understanding, usefulness, and lifelong learning seems very apparent.

From the categories of description, it is obvious that the participants perceive a connection between story maps and their lives. Students understand that story maps can be used to learn about their cultural and historical heritage. They perceive it can be used in different situations, such as in the classroom as a learning tool, and life outside the classroom as a geographic tool. Table 2 below shows the summary of the referential and structural aspect of each categories of description.

Table 4:3. The Referential and Structural Aspect for how students perceive the connection between story maps and their own lives

Table 2

Categorization	Referential Aspect (What story maps are perceived as)	Structural Aspect (How is it perceived)	Point of Attention
Geographic Connection	Story maps is a GPS System They can be used to learn geography	Finding directions Finding places Knowing what a place is like Showing where you are Teaching about places	The focus is on locating, seeing, and understanding what a place is like.
Cultural Connection	Story maps are ways to find cultural and historical information	Seeing places of cultural Significance. Seeing where historical events happened. Learning history from a geographic context.	The focus is on locating cultural places The focus is on connecting time and place
Beyond the Classroom	Story map can be used in and outside the classroom.	Using story maps Making story maps Going to places on the map	The focus is the application of knowledge to different life situations

The Outcome Space: Relationship between the Categories

The outcome space in phenomenography looks at the synergistic relationship that exists among the categories of description. In research question one (*generating inquiry*, *visualizing information*, *mapping interactively*, and *cycling*). Each of the four categories went from the simple recall of knowledge to a more complex synthesis and application of knowledge using the Blooms Taxonomy (Bloom, Engelhart, Furst, Hill, & Krathwohl, 1956). Each category provides students with the opportunity to learn and develop their understanding of social studies content, to improve their map reading skills, and extend their learning through the application of knowledge.

Social studies content development forms the relationship between category one, two, and three. The meanings developed from both categories one and two are based on the quality of information students see on story maps; the dynamic nature of story maps also supports content development in different ways. First, the various map layers allow students to read the maps to learn about different places. Second, students can zoom in and out of the story maps to see exact details of locations. Third, the interactive nature of story maps allows students to understand social studies content on a much deeper level. Thus, the information, visual, and interaction provided by story maps promote student engagement because together they present a chance for students to build and improve their social studies content knowledge and understanding.

The application of social studies knowledge, skill development, and creativity serve as connecting relationship between the three and four. Common to these categories is the notion that students understand and can exhibit and apply their social studies knowledge in creative ways using story maps. For example, students can show what they have learned by creating a presentation using story maps. Students can also use the information from the maps to answer

social studies questions, develop map reading skills and apply their knowledge through making story maps and telling their stories. The diagram in figure 1 shows the outcome space for the four different categories which describe how students perceive their engagement when they learn social studies using story maps.

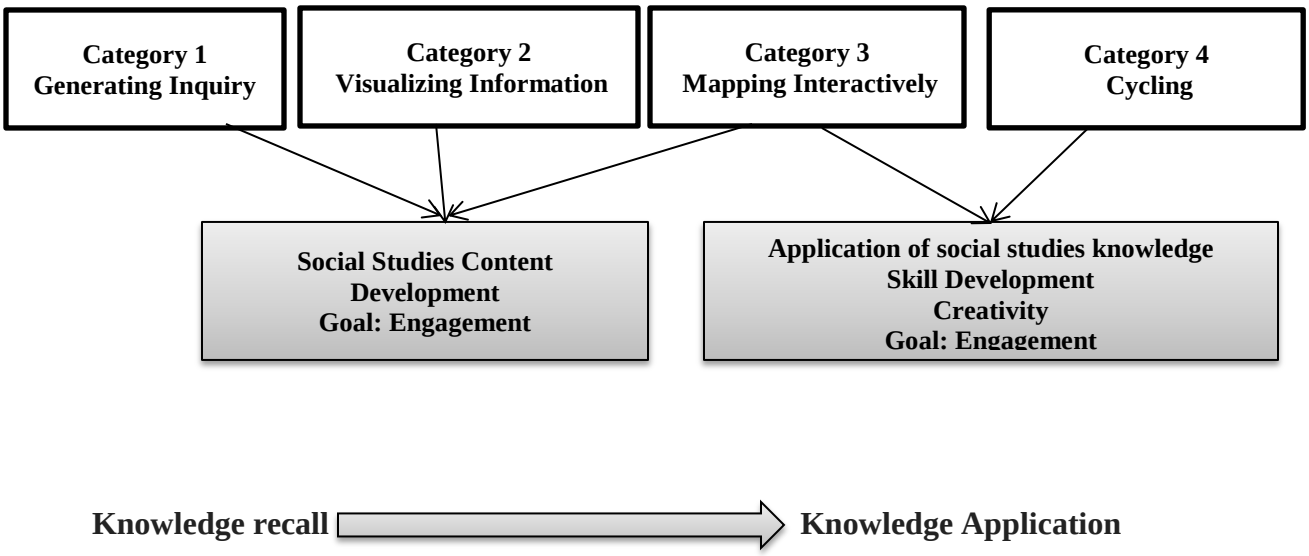


Figure 4.1: The outcome space for how eighth-grade students perceive their engagement when they learn social studies using GIS-story maps.

In research question two, the outcome space reveals the connecting bond between the three categories of description (*geographic connection*, *cultural connection*, and *beyond the classroom*). Just like the relationship in research question one, the relationship in research question two moved from a lower to a higher level of connection between with story maps and the lives of the participants. The relationship between categories one, two and three is seeing, learning, understanding, and knowledge application. Based on the meanings generated from the categories, *seeing* influences their ability to learn and understand both geographic and cultural connections. In addition, seeing where significant cultural events happened supports the building of geographic knowledge because cultural events take place in geographic places. Seeing these

cultural locations also allows students to learn and demonstrate their understanding in active ways Based on the interpretation of the data provided by the students, the ability to see places of cultural and historical significance promotes the desire to go to geographic locations to learn more about where these events happened.

Furthermore, the relationship between culture, geography, and life outside the classroom leads to the idea that students can learn about a place through information found on the story maps. The ability to learn and to understand mirrors the idea of applying learning to different situations beyond the classroom. According to the perceptions of the students, story maps connect to their lives because of the knowledge and understanding they learn from it. The diagram in figure 2 shows the outcome space for how students perceive the connection between GIS-story maps and their lives.

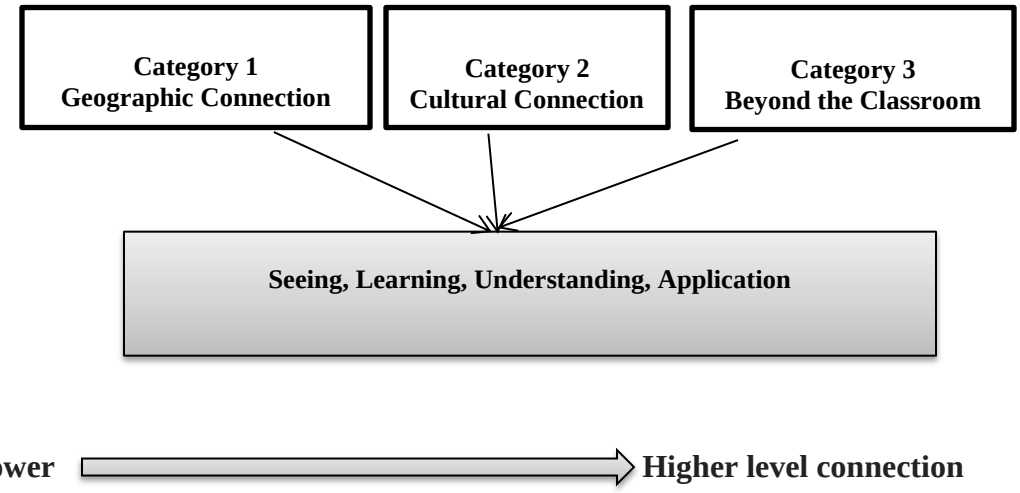


Figure 4.2: The outcome space for how students perceive the connection between GIS-story maps and their lives.

Additional Results from the Study

Looking at how students' perceive their engagement when they use GIS-story maps as a learning tool led the researcher to include interview questions about how they describe

themselves when they are engaged. Participants' responses to the question, Tell me what it looks like to be engaged" led to four categories of description: *engagement as learning experiences*, *engagement as fostering intrinsic motivation*, *engagement as studenting*, and *engagement as evidencing*.

Engagement as Learning Experiences

Learning experiences addresses classroom learning conditions that promote engagement. Aspects of this interpretation revealed in the data include classroom interaction that involved working with the group, teacher communication, contributing to learning, helping others, interests, fun, variety of instruction, practice, materials, and learning new things. For example, Bella explains engagement as the responsibility of the group and the teacher. She expressed these ideas as follows:

> To feel engaged will be communicating with your group, communicating with the teacher.

Other students perceived engagement as a personal obligation and the responsibility of the teacher. Students shared how the quality of teacher's communication impacted the ease of lesson comprehension. Two examples of these descriptions are provided by Irene and Dan as evidence:

> Listening to the teacher. Focusing on stuff, he is saying and trying to understand.

> By showing interaction with the teacher, answering her questions, listening and watching respectfully.

David described his engagement in terms of contributing to learning.

> I love helping out and working. I love helping others to learn and help them understand if they do not understand.

Others define their engagement in relation to interests and the type of activity they worked on in the classroom. Ashley, Ellen, and Janet described their engagement as follows:

> I would like really pay attention. Like if it was really interesting to me I would really love it and start doing it a lot.
>
> It's like sort of exciting because you learn new things.
>
> When I hear information that really sticks out to me and some pictures that interest me, books that talk about the stuff we learn.

Per the replies above, participants identify a connection between engagement and classroom learning experiences. Students in this category focused on the quality of teacher interactions and the variety of classroom learning activities.

Engagement as Fostering Intrinsic Motivation

The most interesting category that emerged from some of the participants' description is the idea of engagement as an ability to foster intrinsic motivation. In this category, students conceptualize engagement as a personal motivation to persevere and put in effort. Here, students admitted the psychological and cognitive dimensions of engagement. For example, Wesley described his engagement as an eagerness and determination to carry out an assignment, he explained:

> For me, engaged looks like wanting to do something and really determined and eager.

The dialogue by Janet below also acknowledged engagement in connection to persevering in learning activities.

> But sometimes it can get like down a little bit but sometimes you have to pick yourself up and all that.

Bridgett described engagement as making as making an effort. She explained:

To like study your subject in school a lot and practice on something occasionally.

Based on the students' responses above, participants identify a connection between their personal motivation and engagement. Students in this category focused on their psychological engagement and determination to engage in learning activities.

Engagement as Studenting

Studenting refers to what students do to help themselves learn (Fenstermacher, 1986). Students in this category view engagement as their personal responsibility. Their outlook seems to be based on how they conduct themselves during learning experiences. They described their behavioral engagement as fully paying attention, listening, and focusing on the teacher. The following dialogue by Ashley, Paul, and Vivian verifies their focus and behavioral engagement:

> I would like really pay attention.
>
> I will be very focused, very quiet, and I will just be looking at my screen and homework and will not pay attention to anybody else.
>
> I guess when I am really good been good and stuff. I can listen.

Participants in this category acknowledged their cognitive engagement as well as taking a personal responsibility for their engagement. Zach and Josh described engagement as:

> Finishing all my work and not turning it in late
>
> I guess if am like doing my work consistently and correctly.

One student provided a detailed description of different factors that stimulates his engagement. Here, emphasis is placed on how his behavior, focus and quality of the learning activity that influence his engagement. Marty explained:

> For me to be engaged I guess is like paying full attention to the teacher, and like you are ready to answer any question the teacher asks you because you are paying full attention. You are looking at them; you are not looking at anything else. You

> are maybe other things that help you concentrate and stuff. It would be like having projects that are easy to understand and so when you are engaged you are probably getting stuff done quicker. So when am engaged I am getting stuff done quicker, and I'm paying attention more to the teacher…. But I will say if I was fully engaged I would get stuff like quickly done because I will get it done real quick and I'll be done.

The responses above reveal a connection between their classroom conduct and engagement. Students also reveal a connection between concentration and the quality of their learning experiences. When students engage in the learning process, it encourages good behavior, and has a positive effect on learning outcomes.

Engagement as Evidencing

In this category, engagement is described as showing evidence of learning. Thus, engagement equates to working on a project, creating a product, practicing active learning activities. Bella articulated her engagement in terms of learning with her hands:

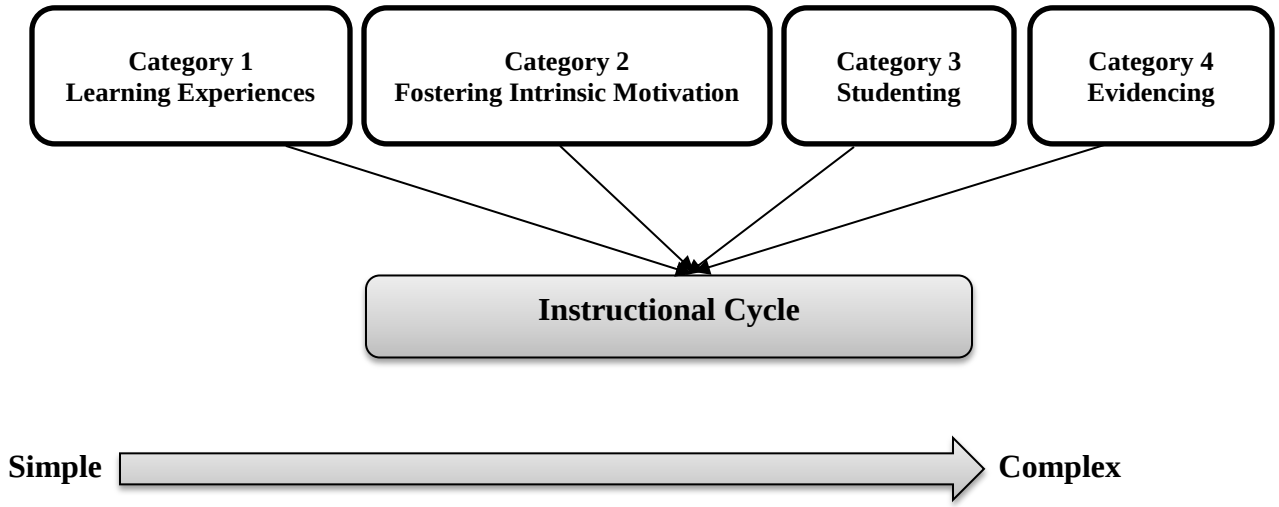
> Actually, being able to use your hands to do something instead of just reading or looking at something, but using your hands to learn something.

In reference to the student response above, importance is placed on working and completing different learning activities. This student sees active learning as a way toward sustaining engagement.

The Outcome Space

The outcome space for the additional findings reveal the relationship between the four categories of description (*learning experiences*, *fostering intrinsic motivation*, *studenting*, and *evidencing*). Just like the relationships described in the two research questions, the students' description also reveal a simple to a more complex progression within the categories of

description. Instructional cycle forms the relationship between category one, two, three, and four. Common to these groups is the perception that students are intrinsically motivated to engage in learning when teachers provide quality learning experiences for engagement to take place. Additionally, when students are intrinsically motivated to participate in learning, it encourages good behavior, and has a positive impact on engagement. The diagram in figure 3 illustrates the outcome space for how eighth-grade students describe themselves when they are engaged in learning.



4.3: The outcome space for students; description of themselves when engaged.

There is also a connection between outcome space one (g*enerating inquiry*, *visualizing information*, *mapping interactively*, and *cycling*) and outcome space three (*learning experiences*, *fostering intrinsic motivation*, *studenting*, and *evidencing*). Both outcome spaces have an interdependent relationship because the successful implementation of the categories described in outcome space one is dependent on the descriptions provided by students in outcome space three. For example, learning experiences designed by educators can engage students in any of the categories of descriptions presented in outcome space one. Learning experiences can also foster student's intrinsic motivation because students are motivated to participate in learning and

behave themselves in the classrooms when they see learning as interesting and relevant. Classroom learning experiences are relevant because the variety and quality of instruction influence how students engage themselves in learning. In the case of this study, story maps engaged students in generating inquiry, visualizing information, mapping interactively, and cycling. Story maps also provided a meaningful learning experience that fostered the students' intrinsic motivation, positive behavior (*studenting),* practice, and an opportunity to show evidence (*evidencing*) of what they had learned. Therefore, continued student engagement is dependent on the variety and quality of classroom learning experiences designed by the teacher to provide the necessary learning conditions for engagement, learning, and achievement to take place.

In sum, the different categories of description discussed above depict distinct ways students describe their engagement. While it brings forth the question of whom they perceive as being responsible for their engagement, there is a connection between all the categories of description. Common to these categories is the impact of classroom learning experiences, and the importance of behavioral, psychological, and cognitive engagement in learning. The meaning generated from the descriptions is that student engagement involves the interplay of different classroom dynamics that make learning more engaging and meaningful for students.

Conclusion

In chapter four the data generated through the observation, written reflections, and interviews were analyzed. The chapter presented the categories of description that emerged from the participants' descriptions and research questions. Each category was presented and discussed using the words of the participants to show the variations in responses and how the different

classifications emerged. Chapter five will present a discussion on the descriptions that emerged from the generated data, and the understandings that emerged from the research. Possible recommendation for future will be discussed.

CHAPTER V

DISCUSSION AND CONCLUSION

The intent of this study is to investigate perceptions held by eight-grade students when they learn social studies using story maps. The research answers the following questions:

1. How do eighth-grade students perceive their engagement with social studies when it is taught using story maps?
2. How do eighth-grade students perceive the relationship between, GIS, story maps to their own life?

Chapter five will present a discussion on the summary of the findings (conclusion), the study limitations, and finally, the implications for educators. The chapter will also discuss suggestions for future research. The analysis of the data for research question one revealed that students perceived story maps as engaging in four qualitatively different ways: g*enerating inquiry*, *visualizing information*, *mapping interactively*, and *cycling.* Students in research question two perceived a geographic, cultural, and beyond the classroom connection. The additional results from the study revealed students' description of themselves when they are engaged, and the categories identified are: *engagement as learning experiences, engagement as fostering intrinsic motivation, engagement as studenting*, and *engagement as evidencing*.

Summary of the Findings and Connections to Previous Research

To explore students' perception of their engagement when they learn social studies using story maps, the researcher examined reports from the classroom observations, student-written

reflections and interview. The subsequent reports helped the researcher to develop the categories of descriptions discussed below.

Generating Inquiry: In generating inquiry, participants described how story maps enhanced social studies research. The students made references to finding and understanding social studies content and compared and contrasted learning social studies through story maps, textbooks, worksheets, and teacher lectures. In this category, fostering research adds an extra layer to students' learning, understanding, and the application of knowledge. Furthermore, Students 'answers in this category demonstrate that research is an essential part of engagement because it empowers students to take responsibility for their learning. This description corresponds with Fitchett and Good's (2012) finding that the use of GIS applications provides avenues for students to explore and investigate from a spatial perspective, while enabling them to take ownership of their learning. In addition, students' believe that story maps are more engaging than worksheets because they can access a variety of information found on the different map layers (Al-Kamali, 2007; Jenner, 2006; Sinton and Lund, 2007; Songer, 2007). Thus, generating inquiry in social studies classrooms is all about transforming how students learn new materials. It involves using research to trigger curiosity, which engages students because it permits them to be active rather than passive learners.

Visualizing Information: Previous studies have shown that GIS promotes students' engagement in several ways. For example, GIS enabled visual learners and stimulated students who were not traditional learners (Aladag, 2014; Kerski, 2003). In visualizing information, participants emphasized showing and seeing information because they can observe and interpret geographical data using a locational perspective (Baker et al., 2012). Therefore, because students visualize information, they view story maps as engaging because it allows them to see accurate

maps of buildings, street, and physical and political features of different locations on the earth's surface.

Mapping Interactively: This category addressed different ways students used story maps. Participants perceived story maps as interactive. Here students see story maps as an innovative technology that allowed them to interact and create their own story maps. For instance, a participant (Ellen) stated that story maps were "not like any other maps. You can actually save it and you have your own thing, you can do anything to it." Therefore, in mapping interactively, the ability to interact with story maps and to create story maps became the main focus of students' perception of engaging with story maps. Strachan and Mitchell (2014) reported in their study that teachers perceive story maps as engaging because they are interactive. In fact, the cooperative nature of story maps elevates the authenticity of the learning experience because students can practice skills related to the discipline (Baker et al., 2012; Holt & Thebpanya, 2013; Favier & Van der Schee, 2012).

Cycling: This category addressed students' challenges and victories when they learned social studies using story maps. Participants in this category referenced story maps as confusing, time consuming, challenging, and easy with time. Their descriptions match studies conducted by scholars who claim that the time learning how to use GIS can be overwhelming for both teachers and students (Aladag, 2014; Kerski, 2003; McClurg & Buss, 2001; Shin, 2003). On the other hand, introducing a new technology in the classroom requires built-in class time for the students to learn. Therefore, figuring out how to use story maps involved developing different cognitive strategies for learning with story maps, which then, becomes an important aspect of students' engagement (Newmann, 1992; Yazzie-Mintz, 2009). Therefore as students continued to experience using story maps, a greater need for problem solving and perseverance naturally

emerged. Although the participants initially found story maps challenging, they eventually endured through peer collaboration and teacher feedback.

Geographic Connection: In geographic connection, the participants perceived a connection between story maps and acquisition of geographic knowledge. In this category, students view story maps as a GPS tool that shows location, places, and information about the earth. These descriptions by the participants in this category, corresponds with the research conducted by Perking, Hazelton, Erickson and Alan (2010), who pointed out that a placed-based approach was more attractive to students because they learn how to speak spatially, and ask spatially, and perform spatial analysis. In addition, their study indicated that GIS increased students' geographic knowledge, their desire to learn geography, while also enhancing the teaching of geography from focusing on low-level recall of information to performing geographic skills (Songer, 2001; Segal & Helfenbein, 2008; Kerski, 2003).

Cultural Connection: Students also recognized a cultural value to learning with story maps. In cultural connections, participants perceived a connection between story maps and their culture because they can be used to explore and spatially visualize historical and cultural locations to build their knowledge of history and geography (Songer, 2003; Shin, 2003).

Beyond the Classroom: This category revealed how students can use story maps outside the classroom. Students highlighted using information from story maps to connect to future life situations such as planning trips and visiting places. Within this category of description, the students stressed the relationship between learning and the application of knowledge. Students perceived a connection between story maps and real life because it allows them to connect to real life situations, involves personal interests, and relevant and meaningful instruction (Shin, 2003).

Students' Description of Engagement

The students' descriptions of engagement (*learning experiences, fostering intrinsic motivatio*n, *studenting, and evidencing),* are significant because it allows educators to think beyond getting students to follow directions in the classroom. Engagement by the participants in this study is perceived in relation to the quality of the classroom learning experiences, their classroom conduct, showing evidence of their learning, and their personal motivation for learning. Responses from the participants revealed that students are better engaged when teachers use a variety of instructional strategies, and facilitate classroom interactions that make engagement and learning possible. This description matches results from other studies that emphasized the importance of designing a learning environment to engage students using both the cognitive and affective domains to promote student engagement in social studies classrooms (Babb, Saar, Marcotte, Brandon, & Frieson, 2013; Ishak & Amjah, 2015; Parsons, Nuland, & Parsons, 2014; Reeve, 2012).

In addition, while students in this study acknowledged the importance of behavioral engagement and their conduct during learning activities, this study suggests reimaging the students' view of what "studenting" (the roles and responsibilities of students) in the scheme of things today. Reimaging the view of how students perceive themselves requires individualizing evidence-based learning for students to take responsibility for their learning to move forward on their career aspirations. For true student engagement to occur there has to be authentic desire in students. Students have to be immersed in a task because they are interested and want to get it done.

Study Limitation

Limitations of this study evolved from the generalizability of the results because they cannot be generalized to another eighth-grade classroom or research environment.

Implications for Teachers

The findings of this study have implications for social studies educators. The variations generated within the data show that eighth-grade students perceive their engagement with GIS-story maps in diverse ways. The findings from the observation and students' description of their engagement shows that students' level of engagement varies depending on the type and quality of students' learning experiences. Although descriptions from the participants in the study seem to suggest that teachers are responsible for students' engagement, this researcher does not see teachers as solely responsible for the engagement of their students. However, the results from this study show the following implications for social studies educators:

1) Provides a platform for teachers to design learning experiences using story maps to engage students in inquiry learning that require different ways of thinking to social studies disciplines or careers.
2) Provides a practical demonstration of how teachers can use story maps and other GIS applications to engage them in personally authentic learning experience using project-based learning. As suggested by Babb et al., (2013), "Work undertaken by students needs to be relevant, meaningful and authentic–in other words, it needs to be worthy of their time and attention" (p. 52).
3) Provides a podium for social studies educators to incorporate cross-curricular content into social studies pedagogy.

4) Story maps allow students to apply their social studies knowledge. Using story maps students are provided the opportunity to show evidence of their learning using geographic literacy.

Recommendations for using story maps as a tool to facilitate engagement as a result of this study are for teachers:

1. Provide more opportunities for students to engage in inquiry learning using GIS, and story maps.
2. Model instruction by showing students how to use the different editing features on story maps.
3. Scaffold instruction when using story maps for students that are not very comfortable with using technology.
4. Teach story maps-based learning activities in small chunks to prevent students from getting overwhelmed and confused.
5. Teach basic map reading skills before more advanced map reading skills using story maps.

In sum, an important implication that generated from this study is to improve teaching and learning in social studies classrooms using a variety of GIS technology like story maps. The study may also be employed by curriculum specialist and other social studies educators to improve their social studies curriculum by looking at strategies and technologies that are supportive to students' classroom learning experiences.

Suggestions for Future Research

Although this study provides information on students' perception using story maps, more research is necessary in other eighth-grade classrooms and school district to make the results of the study more generalizable. The results of the study generated several questions to be answered through more research in social studies classrooms:

1. The impact of story maps on students' academic performance.
2. Students' engagement using story maps in social studies subjects such as geography, economics and civics.
3. Students' perception of the challenges they experience with using story maps as a learning tool.
4. A comparative study exploring students' engagement using GIS, story maps, and paper maps.

Conclusion

When exploring student engagement, research scholars advocate for using different facilitators of engagement that reduce the feelings of disengagement experienced by students in the classroom. They recommend using strategies supported by research to improve the quality of classroom learning experiences that will support students' sustained engagement (Newmann, 1992; Nystrand & Gamoran, 1991; Skinner & Pitzer, 2012). The strategies utilized in this study are grounded in research studies presented in the literature review.

This study allowed students to have a voice as "co-researchers." It utilized phenomenography to explore the different ways students perceive their engagement when they use GIS-enhanced instructional strategies. The findings from this study have shown that twelve

out of the fourteen participants in the study perceive story maps as engaging. Using the results generated from this study, engagement involves the interplay of classroom dynamics, student/teacher relationships, and the quality of the learning students experience in social studies classrooms. Each of these variables affects students' engagement in a different way as evidenced by the data generated from the study. The results from the study also support the contention that engagement depends on the quality of students' investment in their learning activities. Based on the limitation and findings, this research should be explored in other eighth-grade classrooms. Although students first experienced story maps as challenging and confusing, they perceived story maps as engaging because they have the potential to encourage inquiry learning and the application of knowledge in middle and secondary school social studies classrooms.

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LIST OF APPENDICES

APPENDIX A: PARENTAL APPROVAL REQUEST

Date

Dear Parent(s) or Guardian(s):

I am writing to ask your permission for your child to participate in a dissertation project on student engagement in social studies classrooms. I am a doctoral student in the Department of Teacher Education, at the University of Mississippi. During the following weeks, I will be conducting a study to explore how eighth-grade students perceive their engagement when they learn social studies using story maps. I will also seek to know whether they see any connection between the use of story maps and their life.

During the study, your child will be observed in their social studies classroom, and during their Charger time, they will be interviewed. Your child will also be asked to write brief reflections at the end of each lesson, and also create a story map at the end of the unit. The study will take place over a period of seven lessons, and the entire study will take about five weeks.

Your child's teacher, Mr. Webb, will be involved in the study and the content of the lessons will be part of the current social studies curriculum. Mr. Minton will teach the lessons while I observe and later interview the students at the end of the lessons. Your child will be voice recorded while he or she answers questions during the interviews so that the researcher can accurately document their perceptions. Only the researcher will have access to the audio recordings. Recordings will be kept until the end of the study which is expected to be the end of spring semester, 2017. The information I will collect from this study will provide a better understanding of student engagement when story map is used as a learning tool, and improve how social studies is taught in secondary schools.

All data collected in the study will be kept confidential, and no names or identifying information will be used in my dissertation. Members of the Institutional Review Board (IRB) – the committee responsible for reviewing the ethics of, approving and monitoring all research with humans – have authority to access all records. Participation in this project is voluntary, and it will in no way affect your child's grade in this class.

If you have any questions or concerns, please do not hesitate to contact Mr. Webb at email or my dissertation chair, Dr. Ellen Foster at ejfoster@olemiss.edu, or me at eeegiebo@go.olemiss.edu.

Thank you for your anticipated cooperation

Sincerely,
Esohe E. Egiebor
Doctoral Candidate
University of Mississippi

Statement of Consent

I have read the above information. I have been given a copy of this form. I have had an opportunity to ask questions, and I have received answers. I consent to participate in the study. Furthermore, I also affirm that the researcher explained the study to me and told me about the study's risk as well as my right to refuse to participate and to withdraw.

Signature of Parent: _____

Printed name of parent: _____

Date: _____

NOTE TO PARTICIPANTS: DO NOT SIGN THIS FORM
IF THE IRB APPROVAL STAMP ON THE FIRST PAGE HAS EXPIRED

APPENDIX B: STUDENT ASSENT FORM

Assent Form to Participate in a Social Studies Research Project

Dear (*Participant*):

I would like to invite you to help me with a project that I am doing at The University of Mississippi. The purpose of this project is to help me study how you see your engagement when you learn social studies using an interactive mapping technology called story maps in your social studies classroom. No one will see your answers except your teacher, my instructor and me, and I won't use your name in any reports.

If you take part in my research, I will observe you in class, you will write brief reflections after your lessons, and I will, have a conversation with students who agree to volunteer for the interview. You will also be given an opportunity to work on a project to create your own story maps. The interviews will be done during your Charger time, and it will take you about 30 minutes to finish.

You are free to quit this research at any time and I won't be upset with you. If you have any questions or concerns, please ask me now or call me at (*334-447-1798*). Thank you for your help.

Sincerely,
Esohe E. Egiebor
Doctoral Candidate
Department of Teacher Education
Secondary Social Studies

I agree to help with this research project. ❑ YES ❑ NO

Name: _____

Date: _____

APPENDIX C: PILOT STUDY LESSON

Roads and Rivers: 1790-1810 Instructions

Part I: America in 1 790

Complete this step prior to opening the ArcGIS Online map.

Consider and **answer questions #1 and #2** on the answer sheet:

1. **What are some of the landforms and climates that tend to attract people to settle?**
2. **What is attractive about these landforms and climates?**
    - You will be using ArcGIS Online to complete activities that will investigate how cities grew in the United States from 1790 -1850.
    - Using what you know about early US History make a prediction for where the first cities, according to the US Census were located in 1790. Write down your prediction on your answer sheet for **question #3.**
3. **Predict where the first cities were located in 1790?**
    - Go to http://gisetc.com/mushago. Open the map, **Trails to Rails.** Click **Modify Map.**
    - Compare your predictions to the settlement patterns you see on this map. **Complete the chart for question #4** while reflecting on these questions:

Questions to Ponder:

- **How accurate were your predictions?**
- **Where are cities located? Where are cities not located?**
- **What patterns do you notice?**
- **Do you have any questions about the patterns you see?**

APPENDIX D: UNIT PLAN & RUBRIC: TRAVELLING THROUGH THE TRAIL OF TEARS

Title	Travelling Through the Trail of Tears
Author	
Affiliation	University of Mississippi
Grade	Grade 8

Geography for Life Standards for Content Skill(s)

Geographic Standard 2.

How to analyze the spatial organization of people, places, and environment on Earth's surface

- Models are used to represent spatial processes that shape human and physical systems

Geographic Standard 5.

That people create regions to interpret Earth's complexity

- The boundaries and characteristics of regions change

Geographic Standard 13.

How the forces of cooperation and conflict among people influence the division and control of Earth's surface

- There are multiple sources of conflicts resulting from the division of Earth's surface

Standard 17.

How to apply geography to interpret the past

- Change occurs in the geographic characteristics and spatial organization of places, regions, and environment

Duration	45 minutes of 7 class periods

Lesson Purpose and Description

After the Indian Removal Act was passed in 1830, the federal government relocated the Choctaw and the Chickasaw under very cruel conditions. The forced removal and trip became known as the Trail of Tears. In these geo-historical inquiry lessons, students study the effects of the Indian Removal Act on the Mississippi Native American societies. The students will also use mapping technologies to examine the Native American journey to the West on what is now known as the Trail of Tears, and create a story map of what used to part of the Mississippi Native American Territory- The Natchez Trace.

Lesson Objectives

At the end of the unit the students will be able to:

- Construct a timeline to identify and describe the treaties that ceded the Mississippi territories to the federal government between 1801 and 1832
- Describe the process by which the Mississippi territory was admitted to the United States (DOK 1)
- Compare push and pull factors that influenced the migration of people into Mississippi (DOK 2)
- Discuss the causes and effects of the Trail of Tears

- Create layers to answer geographic questions using ArcGIS Online map (DOK3)
- Create a story map to provide historical information

Spotlight on the Trail of Tears

Conflicts between Native Americans and White settlers increased as settlers began moving west. Land speculators, settlers, and squatters wanted all Native Americans moved west across the Mississippi River so that more land would be made vacant for the White settlers. To make this possible, the federal government negotiated a series of treaties, which required the Choctaw and the Chickasaw to leave Mississippi for land in the Indian Territory in what is now presently eastern Oklahoma.

Teacher Toolbox

These lessons use ArcGIS Online mapping technology and the National Council of Geographic Education lesson plan template which was informed by the instructional material and professional development committee report. Each lesson can be taught separately or together as a full unit of study. Some special features of the teaching strategies used in lessons include:

- Promotes using the Natchez Trace Parkway maps
- Promotes using the ArcGIS Online
- Before, during, and after strategies to promote student engagement and understanding
- Using the big idea to ask geographic questions
- Using a short video clip to get the attention of the students
- Using a project-based learning activity that will allow teachers to learn more about what their students understand and know

Alignment to National Standards

C3 Framework for State Social Studies Standards:

D2.His.2.9-12

- Analyze change and continuity in historical eras

D2.Geo.2.6-8

- Use maps, satellite images, photographs, and other representations to explain relationships between the location of places and the regions, and changes in their environment and characteristics.

D4.2.9-12

- Construct explanations using sound reasoning, correct sequence (linear or non-linear), examples, and details with significant and pertinent information and data, while acknowledging the strengths and weaknesses of the explanation given its purpose.

Common Core (ELA for Science, Social Studies, and Technical Subjects):

CCSS.ELA-Literacy.RH.9-10.3

- By the end of the year analyze in detail a series of events described in a text; determine whether earlier events caused later ones or simply preceded them

CCSS.ELA-Literacy.W.9-10.9

- By the end of the year draw evidence from literary or informational texts to

support analysis, reflection, and research

Mississippi Social Studies Framework Grade 8 (Mississippi studies, 2011)

- 1B: Describe the social, economic and political context of Mississippi when it was held by France, England and Spain and describe the process by which the Mississippi territory was admitted to the United States. (DOK 1)

Teacher Masters:	**Materials**	**Other Materials (including examples of student work**
1. Video clip from: Executive Productions – Seattle. (2012). *Trail of Tears* [video animation for Fort Smith Historical Site]. Retrieved from http://www.youtube.com/watch?v=HIuCzdcHFLg. Last accessed on April 21, 2015. 2. ArcGIS online general introduction available at http://esriurl.com/usk12gis. Last accessed on April 4, 2016. 3. Teacher/Student tutorials from Kerski (2014) available at http://bit.ly/StoryMapTutorials last accessed April 4, 2016.	Student Handouts: 1. Guide students to set up a free ArcGIS account https://www.arcgis.com/home/. 2. Paper, Pencil 3. Classroom projector 4. Computers with Internet access 5. Textbook for this lesson *A Place Called Mississippi* by Clairmont Press 6. Black and white outline map of the State of Mississippi	

Developing Vocabulary

- **Assimilation:** is the process by which a person or a group's language and/or culture come to resemble those of another group.
- **Indian Removal:** Official policy that authorized the removal of Native Americans to Indian Territory in present-day eastern Oklahoma.
- **Trail of Tears:** The long and dangerous journey from ancestral lands to the Indian Territory.
- **Land cessions**: Giving up land to another party.
- **Landscape:** is a part of the earth surface made up of different geographic features found in an area. The two types of landscapes are:
- **Natural:** Landscapes unaffected by different human activities. Mountains, deserts.
- **Human:** landscapes created and modified by people. Cities, farms
- **Forced Migration**: Forced movement of people from a region or their ancestral home.

Assessing Student Learning

Formative Assessment: Teacher will conduct formative assessments of students using exit slips, questioning, and reflective activities.

Summative Assessment: Students imagine that they are historians and geographers who have been assigned by the Native American Historical Society museum to prepare a Story Map presentation to inform visitors about the history of the Natchez Trace, from the time Mississippi became a U.S. territory in 1798 to the present day. The Natchez Trace were originally Native American settlements before the Indian Removal Act. The history will be featured using different map layers inside ArcGIS Online. Students will use the information they have learned to educate museum visitors about the Natchez Trace. A rubric will be used to access their performance of the task.

Advance Preparation

1. Video clip from: Executive Productions – Seattle. (2012). *Trail of Tears* [video animation for Fort Smith Historical Site]. Retrieved from http://www.youtube.com/watch?v=HIuCzdcHFLg. Last accessed on April 21, 2015.
2. ArcGIS online general introduction available at http://esriurl.com/usk12gis. Last accessed on April 4, 2016.
3. Guide students to set up a free ArcGIS account https://www.arcgis.com/home/.
4. Teacher/Student tutorials from Kerski (2014) available at http://bit.ly/StoryMapTutorials last accessed April 4, 2016.

Lesson Procedure

Lesson 1:

Vocabulary

- **Assimilation:** is the process by which a person or a group's language and/or culture come to resemble those of another group.
- **Indian Removal:** Official policy that authorized the removal of Native Americans to Indian Territory in present-day eastern Oklahoma.
- **Trail of Tears:** The long and dangerous journey from ancestral lands to the Indian Territory.
- **Land cessions**: Giving up land to another party.

Daily Objectives

The students will be able to:

1. Identify and describe the treaties that ceded the Mississippi territories to the federal government.(DOK 1 & 2)
2. Describe the relative location of the areas affected by the treaties. (DOK 1)
3. Describe the process by which the Mississippi territory was admitted to the United States. (DOK 1)
4. Identifying key figures surrounding the Trail of Tears.(DOK 1)

Before: Brainstorming

- Show students the video clip on the trail of tears from http://www.youtube.com/watch?v=HIuCzdcHFLg. Have them observe the map and answer the questions below in their notebooks:
- What year was the Indian Removal Act passed? (May 28, 1830)

- What President was responsible for passing the Act? (Andrew Jackson)
- Why was the Indian Removal Act passed? (The Indian Removal Act was passed to remove Native American tribes in the Southern United States to federal territory west of the Mississippi River and to clear the land for White settlement.)
- Pause the video to discuss relevant information relating to the content of the lesson.

During: Inquiry Learning

- After discussing the video with the students, divide students into groups of 4, and distribute the black copies of Mississippi outline maps
- Have them read about the acquisition of Native American land from their textbook.
- Go to http://bit.ly/NATRSample.
- The map on the screen shows the part of Mississippi affected by the treaties. Click on the different areas affected by the treaties and ask the students to draw the boundaries of the areas affected by the treaties on their paper maps.
- Ask students to name the treaties that ceded land in Mississippi (Treaty of Fort Adams, Treaty of Mount Dexter, Treaty of Doak's Stand, Treaty of Dancing Rabbit, and Treaty of Pontotoc).
- Ask students to label the areas on their outline maps.
- Click on any part of the highlighted section and ask the students to answer the following questions in their notebooks.

1. What are the names of some of the areas affected by the cessations? (Fort Adams: west Mississippi, Mount Dexter: east Mississippi, Doak's Stand: west central Mississippi (the Natchez Trace), Dancing Rabbit: central Mississippi, and Pontotoc Creek: north Mississippi).
2. Which cession appears to be the largest in area? (The Treaty of Doak's Stand).
3. What do you notice about the location of the boundaries? Which counties today are located in these areas? (Answers will vary).

After: Classroom Questioning and Discussion

To conduct an informal assessment on the first day of the lesson, lead a discussion or ask students to reflect on what they learned in their notebooks by asking the following questions:

1. What groups of people in Mississippi were involved in the Trail of Tears? (The Federal Government, White farmers, the Choctaw, Chickasaw, the large Southern tribes, including the Creek, Cherokee, and the Seminole.)
2. Why did the government want the Native Americans moved from their land? (The White farmers on settling in Mississippi realized that the Choctaw and Chickasaw occupied most of the fertile soil they had come to farm. The White farmers and politicians claimed that the Native Americans did not use the land as the Creator intended. This claim became the origin of the state and federal policies known as the Indian Removal.)
3. Name the five treaties by which the Choctaw and Chickasaw ceded their Mississippi land to the federal government. (The Treaty of Fort Adams, The Treaty of Mount Dexter, The Treaty of Doak's Stand, The Treaty of Dancing Rabbit, and The Treaty of Pontotoc

Creek.)

4. Was the Indian Removal Act a reasonable policy? Explain your answer.
5. Close the lesson by calling on students to share their answers with the class.

Lesson 2:

Materials

1. Textbook for this lesson *A Place Called Mississippi* by Clairmont Press

Lesson Objectives:

Students will be able to:

1. Describe the process by which the Mississippi territory was admitted to the United States. (DOK 2)
2. Compare push and pull factors that influence the migration of people. (DOK 2)
3. Explain the events that led to the Trail of Tears.(DOK 3)

Before: Content Discussion

- Activate students' prior knowledge by asking what they know about the Indian Removal Act.
- Inform them that today's lesson will be on the Trail of Tears.

During: Explicit Instruction

- Tell them: The Trail of Tears is a name given to the forced removal of Native American people from southeastern parts of the United States after the Indian Removal Act of 1830.
- Tell them again: The trek of the Native Americans to the Indian Territory in Oklahoma was known as the Trail of Tears because of the number of people who died along the way.
- Show them the Natchez Trace Parkway on the map and tell them that in 1798, when Spain gave up its hold on the Natchez district, the United States established the Mississippi territory. http://bit.ly/NATRPoints.
- Also tell them that: The Treaty of Fort Adams in 1801 was the first in a series of treaties in which the Choctaws gave up their land. The United States received almost 3 million acres of land and the right to build a road (the Natchez Trace) through Choctaw territory**.**
- Using the textbook as a guide, discuss the events that led to the removal of the Native Americans from their land east of the Mississippi River to present-day Oklahoma, then called Indian Territory.

After: Classroom Questioning

- Ask students to respond to a prompt you pose to the class.
- You may state the prompt orally to your students or project it visually on an overhead or blackboard.
- You may want to distribute index cards, post it notes, or loose leaf paper for students to write their responses.
- As they leave the room students turn in their exit slips.
- This can be used as an informal assessment at the end of your lesson.

Exit Slip: 3-2-1

- 3:Write three things you learned today
- 2: Write two questions you may have about today's lesson
- 1: One thing I would like to learn more about…

Lesson 3:

Materials

1. Computers with Internet access
2. Character quote from: http://mike-boucher.com/wordpress/?page_id=221. Last accessed April 14, 2016.

Lesson Objectives

Students will be able to:

1. Identify the key figures surrounding the Trail of Tears.(DOK 1)
2. Search and create a layer in ArcGIS of the National Historic Trail of Tears Map. (DOK 3)

Before Reading: Character Quotes

- Preview the text Green, L. (1995). "Choctaw removal was really a "Trail of Tears"

Suggested quote:

"The Choctaws were allowed the first two weeks of October to gather their crops, assemble their personal property and sell their houses and chattels, so that they could be at the two ferry points on Nov. 1, 1831. Because of the urging of the state of Mississippi, the Choctaws were ordered to leave all of their livestock in Mississippi and promised that they would be furnished new livestock when they reached the "Choctaw Nation in the West".

- Ask them to predict what they are going to learn in the lesson and encourage students to visualize the people, settings and events as they listen or read.

During: Content Discussion

- After completing the before strategy, have them read A brief history of the Trail of Tears from:http://www.cherokee.org/AboutTheNation/History/TrailofTears/ABriefHistoryofthe TrailofTears.aspx. Last accessed April 14, 2016.
- After completing their "before strategy", lead a 15 - 20 minute class discussion on the experiences of the Native Americans on the Trail of Tears.

After: Classroom Questioning

- To close the lesson, ask students to write three questions they have from the story they just read. Remind them to use the five W's-Who? What? When, Where, and Why?
- Have students find the answers to their questions and share their answers with the class
- Ask is students have any remaining questions about the Trail of Tears.
- Tell students that tomorrow they will search for and create layers of the Trail of Tears using ArcGIS Online.

Lesson 4:

Vocabulary

- **Landscape:** is a part of the earth surface made up of different geographic features found in an area. The two types of landscapes are:
- **Natural:** Landscapes unaffected by different human activities. Mountains, deserts.
- **Human:** landscapes created and modified by people. Cities, farms
- **Forced Migration**: Forced movement of people from a region or their ancestral home.

Materials

1. ArcGIS online general introduction available at http://esriurl.com/usk12gis. Last accessed on April 4, 2016.
2. Guide students to set up a free ArcGIS account https://www.arcgis.com/home/ or use a K12 school organization account. More information at: http://www.esri.com/connected
3. Teacher/Student tutorials from Kerski (2014) available at http://bit.ly/StoryMapTutorials last accessed April 4, 2016.
4. Computers with Internet access

Lesson Objectives

Students will be able to:

1. Search and create a layer in ArcGIS of the National Historic Trail of Tears map.(DOK 2)
2. Answer a geographic question
3. Create a layer that describes features of the landscape

Before: Analyzing Cause and Effects

- Have students answer the following questions as an opening activity:

1. What was the cause and effect of the Indian Removal Act? What are some of the possible long-term effect of the Act on the Native American people? The Indian Removal Act was a law passed to remove Native American tribes in the Southern United States to federal territory west of the Mississippi River. Answers to the second part of the question will vary.)

- Next, go over the answers with the students. Tell students that in this lesson they will learn how to create layers using ArcGIS Online.

During: Collaborative Learning: Creating Map Layers in ArcGIS Online

- Divide the class into groups of four or five students each. If you do not have enough classroom computers, the lesson should be done in a computer lab.
- Guide students to set up a free ArcGIS account https://www.arcgis.com/home/. Or use a K12 school organization account. More information at: http://www.esri.com/connected
- Ask students to open http://bit.ly/NATRPoints
- The map on the screen shows the Natchez Trace Parkway.
- Discuss the vocabulary words with the students.
- Ask students to click "Basemap" then "Imagery with labels," "Add" and "Search for a layer". In the in column click ArcGIS online, and in the find column, type "Hillshade".

Click on Multidimensional Hillside. Click "Add, then "Done adding layers" to create the layer.

- Tell them to adjust the map transparency by clicking the 3 dots. Save as (your name) and answer the following questions.
- What types of landscape are shown on the map?
- Write a description of the location of the landscapes. Give possible reasons to explain why they are found there.
- Identify and name the states on the land route. (Alabama, Tennessee, Arkansas, and Oklahoma)
- Identify and name the states on the water route. (Alabama, part of northern Mississippi, Tennessee, Arkansas, and Oklahoma)
- Zoom into the ancestral lands of the Native Americans and the end of the journey to Eastern Oklahoma.
- Click "Add", then "Add Map Notes", name it Line Features, and click Create.
- Click 'Line". Draw a line to show the most expedient route to Eastern Oklahoma. (noting the vegetation, elevation, and water bodies. Describe and save as possible route.
- Students can add another layer using "Trail of Tears" in the ArcGIS column (Suggested selection Rthomas, BucknellGIS or KanDOT)
- Students will compare their route with the route chosen by the Federal Government and answer the following questions:
- How did your route compare with the route taken by the federal government?
- Did following the Federal Government route contribute to greater loss of life? Why?

After: Extension and Exit Reflection

- Extend the lesson by discussing other examples of forced migrations, the African Slave trade and the crisis in Syria. Ask them to answer the following questions
- What factors contribute to forced migration?
- Do all forced migrations happen for the same reason

Lesson 5, 6, and 7

Materials

1 ArcGIS online general introduction available at http://esriurl.com/usk12gis. Last accessed on April 4, 2016.

2 Guide students to set up a free ArcGIS account https://www.arcgis.com/home/ or use a K12 school organization account. More information at: http://www.esri.com/connected

3 Teacher/Student tutorials from Kerski (2014) available at http://bit.ly/StoryMapTutorials last accessed April 4, 2016.

1. Paper, Pencil
2. Classroom projector
3. Computers with Internet access

Lesson Objectives

Students will be able to:

1. Create and present a historical event using a Story map. (DOK4)

Before: Brainstorming

Ask students to name the different types of maps they know. Possible answers might include political maps, physical maps, special purpose maps, and so on. Ask students to give examples of different types of presentation software. Possible answers might be PowerPoint and Prezi. Point out that until recently most people relied on paper maps to learn about different locations around the world. Discuss how new interactive maps can change how people learn about historical information

During: Collaborative Learning:

- Divide the class into groups of four or five students each. If you do not have enough classroom computers, the lesson should be done in a computer lab.
- Make all relevant photocopies including step- by- step directions on using ArcGIS to make maps. Create an ArcGIS story map presentation to use an example to show students.

Creating a Story Map Presentation in ArcGIS Online

- Organize the class into small groups of four or five.
- Have imagine that they are historians and geographers who have been assigned by the Native American Historical Society museum to create a story map presentation to inform visitors about the history of the Natchez Trace, from the time Mississippi became a U.S. territory in 1798 to the present day. The Natchez Trace were originally Native American settlements before the Indian Removal Act. The history will be featured using different map layers inside ArcGIS Online. Students will use the information they have learned to educate museum visitors about the Natchez Trace. Have students research a minimum of 7 points along the Natchez Trace that tells the history of the Trace. Their points will include the following:
- Devil's Backbone State National area
- Mount Locust
- Emerald Mound
- Windsor Ruins
- Sunken Trace
- Include two other points you consider are historically significant. One of these two must have its significance after 1900. Describe the significance of each point and include pictures or videos. At least one point must contain a video**.**
- A rubric will be used to access their performance of the task.

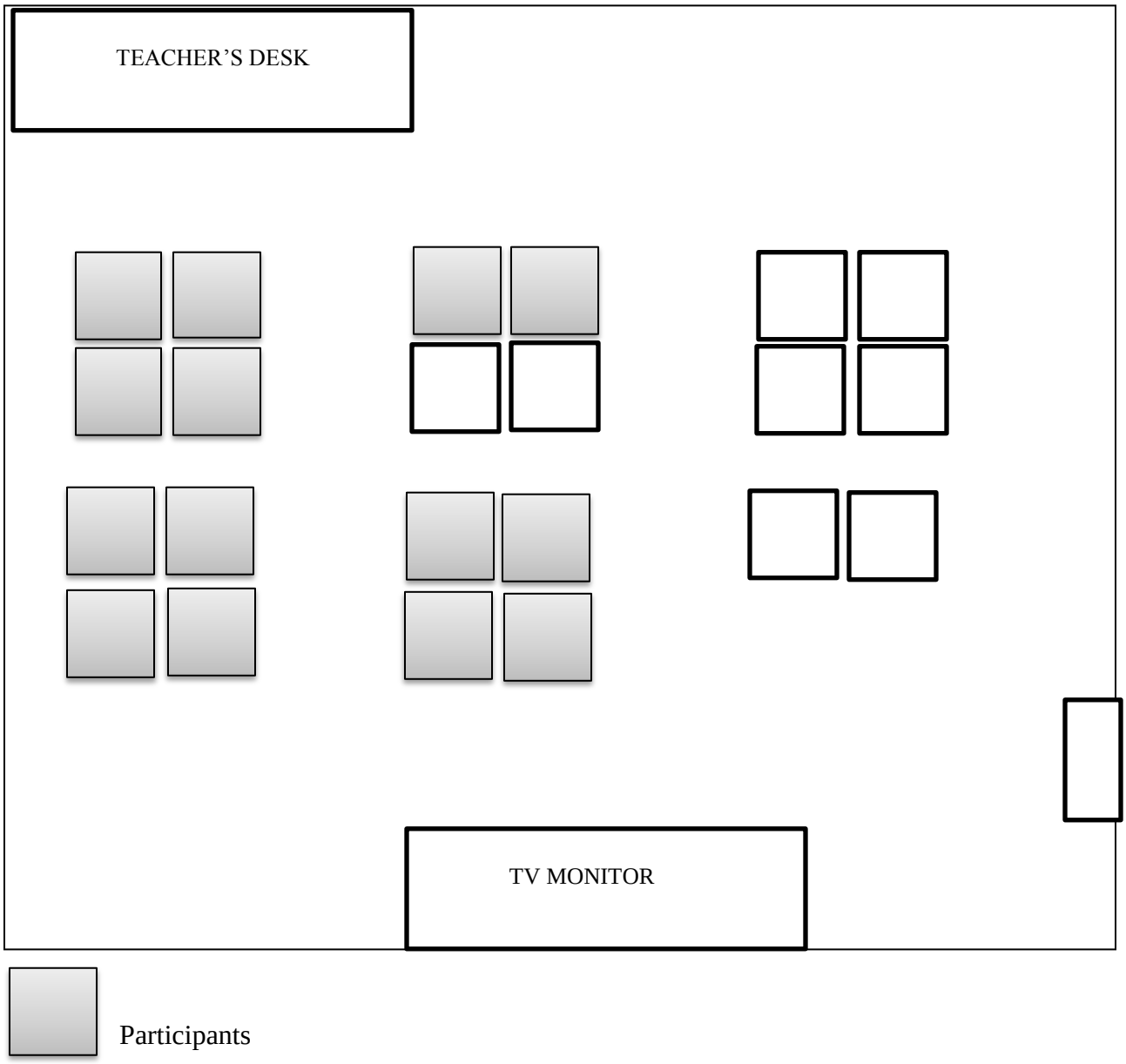
Differentiation & Accommodation

- Instructions will be uploaded on Schoology
- A short video explaining the steps for students that are visual and auditory learners**.**
- Give more time for students to complete the assignments

- Use the buddy system for support and mentoring

Category	4	3	2	0
Information - Completion	Students have labeled all seven points on their map.	Students have only labeled the five points required in the instructions but have not labeled two of their own choosing.	Students have labeled less than half of the required points.	Students have labeled zero or only one point on their map.
Information - Description	All points have a description attached to them.	Half or more points have a description.	Less than half of the points have a description.	No points have a description.
Information - Accuracy	All labeled points are correct, and the attached descriptions match. Information found in descriptions is correct.	Most points are labeled correctly with descriptions. One or two points may be incorrectly labeled or mixed up.	Less than half of the points are labeled or missing descriptions.	None of the points are labeled or have descriptions.
Pictures and Video	All points have images or video. At least one point has a video.	Most points have images or video. At least one point has a video.	Less than half of the points have images or video. At least one point has a video.	No points have images or video.
References	All references are clearly and correctly cited in APA (or desired) style.	All references are cited but not in the proper style.	Not all references are cited and may or may not be in the proper style.	No references are provided.

APPENDIX E: SITTING CHART


TEACHER'S DESK
TV MONITOR
Participants

APPENDIX F: STUDENT ENGAGEMENT OBSERVATION PROTOCOL

Note: The indicators below apply in both whole class and small group settings. A yes or no check mark response will correspond to at least 75% of the students in the class are engaged or disengaged.

Indicators:	Yes	No
Physical manifestations of engagement **Students are:** □ Generally attentive □ Focused on task □ Asking content related question □ Having on-task conversation □ Following instruction, supporting one another □ Indicators of engagement including, but not limited to: ▪ Active interest ▪ Effort ▪ Concentrating ▪ Head nods ▪ Interacting with the devise ▪ Problem Solving		
Indicators	Yes	No
Physical manifestations of disengagement **Students are:** □ Looking around □ Unable and unwilling to participate □ Appears frustrated □ Indicators of disengagement including, but not limited to: ▪ Off topic discussion, complaining ▪ Looking bored ▪ Not concentrating ▪ Disruptive		

Notes:_____
_____
_____
_____
_____
_____
_____

APPENDIX G: STUDENT WRITTEN REFLECTION

Directions: Please reflect and provide a detailed explanation of your response on the blank lines provided under your questions.

- Reflection 1:

  How would you describe your feelings toward using story maps in today's lesson?

- Reflection 2:

  In what ways, if any, did today's lesson help you learn social studies

- Reflection 3:

  Compared to how you felt the first day you used story maps, how would you describe how you felt using story maps today?

- Reflection 4: After story map creation

a. In what ways, if any, did story mapping help you learn social studies?
b. How do you feel about making your own story maps? What parts of it do you particularly like? Dislike? Why?
c. What problems did you encounter while you created your map? How did you solve them?
d. What was satisfying or dissatisfying to you about the process of making story maps?

- Reflection 5: After story map presentation

a. Would you recommend that story maps be used in teaching social studies?
b. Are there any connections between story maps and your life? Explain.

APPENDIX H: INTERVIEW PROTOCOL

Questions to ask students:

1. What do you like most in school?
2. What do you like least or dislike about school?
3. Think back and tell me a time when you were engaged in school.
4. Tell me what it looks like for you to be engaged.
5. Tell me what it looks like for you to be disengaged.
6. Do you feel you were engaged in learning at any time during the last weeks? Why and why not?
7. How would you describe your feelings when you learn social studies using story maps?
8. Ask probing questions based on the observation like: During the observation, I noticed you were ……. tell me what you were thinking when you were using story maps.
9. During the past weeks tell me one thing you remember from your social studies class.
10. During the past weeks tell me one thing you remember from story maps.
11. How does social studies connect to your life?
12. How do story maps connect to your life?

Questions to ask the teacher

1. Tell me what student engagement means to you?
2. Tell me what student engagement isn't?
3. Do you feel your students were engaged in learning at any time during the last weeks? Why and why not?
4. What do you think of story maps as a way of teaching and learning social studies

APPENDIX I: RELEASE FORM

The University of Mississippi Release Form

For valuable consideration, I do hereby authorize The University of Mississippi, its assignees, agents, employees, designees, and those acting pursuant to its authority ("UM") to:

a) Record my participation and appearance on video tape, audio tape, film, photograph or any other medium ("Recordings").
b) Use my name, likeness, voice and biographical material in connection with these recordings.
c) Exhibit, copy, reproduce, perform, display or distribute such Recordings (and to create derivative works from them) in whole or in part without restrictions or limitation in any format or medium for any purpose which The University of Mississippi, and those acting pursuant to its authority, deem appropriate.
d) I release UM from any and all claims and demands arising out of or in connection with the use of such Recordings including any claims for defamation, invasion of privacy, rights of publicity, or copyright.

Name: _____
Address: _____
Phone No.:_____
Signature: _____
Parent/Guardian: _____

VITA

Ms. Esohe E. Egiebor

12027 Water Ridge Drive
Oxford, MS, 38655
Phone: 334-447-1798

Educational Qualifications

University of Mississippi. Oxford, Mississippi
*Social Studies Education, **Ph.D. May 2017***

Ph.D. Dissertation Title
A phenomenographic study of student engagement using GIS -story maps in an eighth-grade Social Studies Classroom

Alabama State University. Montgomery, Alabama
*Secondary Social Science Education, **M.S.***; ***December 2008***
Certification in 6-12 Social Science

University of Benin. Benin City, Nigeria
*History, **B.A.***; ***August 1991***

Teaching Experience

A. Teaching Engagements at The University of Mississippi:

University of Mississippi, Oxford, Mississippi
*Graduate Assistant (*EDCI 419 – Effective Classroom Management & Assessment Practices), ***Fall Semester 2014 and Spring Semester 2015***

University of Mississippi, Oxford, Mississippi
*Teaching Internship (*Internship: EDCI 353- Planning and Teaching Strategies for Effective Classroom Practice), ***Fall 2015***

University of Mississippi, Oxford, Mississippi
*Teaching Internship (*EDSE 447-Special Methods in Social Studies), ***Spring 2016***

University of Mississippi, Oxford, Mississippi
*Graduate Assistant (*EDCI 352 Education, Society, & the K-12 Learner), ***Fall 2016***

B. K-12 Teaching & Administrative Engagements:

Carr Middle School, Montgomery Public School (MPS) Montgomery, Alabama
Social Studies Teacher; ***August 2012 – May 2014***
Grade 6: U. S. History, Head of Social Studies Department

Goodwyn Middle School, Montgomery Public Schools (MPS) Montgomery, Alabama
Social Studies Teacher; ***August 2011 - May 2012***
Grade 7: World Geography, Civics

The Centagon International School, Abuja Nigeria
Vice Principal – Elementary; ***January 2010 – May 2011***

Lyeffion Junior High School, Evergreen, Alabama
Social Studies Teacher; ***August 2008- August 2009***
Grade 6-8: U.S. History, Geography, Civics, and World History

Gateway Charter School, Fort Myers, Florida
Social Studies Teacher, 6th Grade; ***August 2006-May 2007***
Grade 6: World Geography

Gateway Charter School, Fort Myers, Florida
Substitute Teacher; ***March-May 2006***
Multiple Grades

Lee County School District, Fort Myers, Florida
Substitute Teacher; ***March –May 2006***
Multiple Grades

Related Professional Experience

Fall 2014. Lesson and unit plan development.

- Travelling Through the Trail of Tears (Manuscript submitted for publication)
- Who Lived in Mississippi Many Years ago?
- Mississippi Native American Mound Builders
- Native American Cultures of Mississippi

July 2016: Organized and facilitated a Train the Trainer Workshop for Federal Government College Odogbolu as part of the alumni give back initiative.

January 2010- May 2011: International education leadership experience at Centagon International School.

Other Professional & Management Experience

Thisday Newspapers, A Major Nigerian National Daily Newspaper; Published by Leaders & Company, Ltd., Lagos, Nigeria
Sub-Editor and Assistant Advert Manager, ***July 1992- August 1998***

Scholarly Conference Presentations

Egiebor E., Thomas, M., & Foster, E. (July, 2016). *Using geospatial technologies to promote student engagement and performanc*e. Poster presentation at the National Council for Geographic Education Conference held in Tampa, FL.

Foster, E., Winslow, R., & Egiebor, E. (July, 2015). *Tracing the Story: Natchez to Nashville using story map*s. Lightening talk at the ESRI Users Conference held in San Diego, CA.

Egiebor E., Foster E., & Winslow, R. (2015, November). *Exploring our national parks using interactive maps for student engagement*. Poster presented at the 2015 National Council for the Social Studies Conference New Orleans, LA.

Scholarly Publications

Egiebor E., & Foster, E. (2016, March). *Travelling through the trail of tears*; A Lesson plan submitted for publication (undergoing review) to *The Geography Teacher* – A journal of the National Council for Geographic Education (NCGE).

Grants Received

July 2016	Mississippi Geographic Alliance. Travel grant to attend the National Council for Geographic Education Conference in Tampa, FL. $400
July 2016	University of Mississippi Graduate School. Travel stipend to attend the National Council for geographic Education Conference in Tampa, FL. $300

July 2016	University of Mississippi, School of Education. Travel stipend to attend the National Council for geographic Education Conference in Tampa, FL. $300
July 2015	University of Mississippi Graduate School. Travel stipend to attend the ESRI User Conference in San Diego. $300
Nov. 2015	University of Mississippi, School of Education. Travel stipend to attend the National Council for the Social Studies (NCSS), New Orleans, LA. $300.
July 2015	University of Mississippi Graduate School. Travel stipend to attend the National Council for the Social Studies (NCSS), New Orleans, LA. $300

Professional Memberships

2014- Present	National Council for Geographic Education (NCGE)
2014- Present	National Council for the Social Studies (NCSS)
2014 –Present	Mississippi Geographic Alliance (MGA)
2014- Present	Mississippi Council for the Social Studies (MCSS)

Service to University

Spring 2016	School of Education: Search Committee member for Early Childhood and Special Education Assistant Professor.
Fall 2016	School of Education: Search Committee member for Administrative Secretary, School of Education

Service to Professional Associations

Spring 2015:	Volunteer Oxford Middle School/ Department of Social Studies World Religions Day.
Spring 2015:	Facilitator for the National Council for geographic Education Giant Map of Africa project

Awards and Recognitions

April 2014:	Selected Master Teacher for Johnnie Carr Middle School, Montgomery Alabama

April 2016: Outstanding Doctoral Student in Secondary Education by the School of Education, University of Mississippi

References

1. Dr. Ellen Foster (Advisor & Doctoral Committee Chair)
   Associate Professor of Social Studies Education
   Department of Teacher Education
   University of Mississippi

2. Dr. John Johnston
   Director of Human Resources and former Principal
   Montgomery Public Schools
   307 S. Decatur Street
   Montgomery, AL 36104

3. Dr. Mohammed Salau (Doctoral Committee Member)
   Associate Professor of History
   University of Mississippi