The Impact Of Project-Based Learning On Critical Thinking In A United States History Classroom

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THE IMPACT OF PROJECT-BASED LEARNING ON CRITICAL THINKING IN A UNITED STATES HISTORY CLASSROOM

by

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DEDICATION

I dedicate this dissertation to my family without whose support completing this document would not have been possible. To my wife, Susanne, I am forever grateful for your support, encouragement, and patience throughout this process. To my children, Hampton, Harper, and Hadley, I hope this process instills within you a strong work ethic and an appreciation of the value of education. To my parents, I am thankful for the support and the lifelong examples you provided.
ACKNOWLEDGEMENTS

I would like to thank my dissertation committee and in particular my chair Dr. Ken Vogler for guidance and support throughout the study’s duration. I would also like to thank education mentors, Dr. Paul Thomas and Dr. Ed Welchel whose commitment to progressive education serves as an inspiration to both myself and future educators.
This present quantitative action research study compared the test scores of one group of students who experienced a project-based instruction United States history unit with one group of students who experienced a traditional lecture style United States history unit at a suburban high school in South Carolina. The problem of practice that guided this study arose from the lack of critical thinking that the essentialist curriculum and teach-to-the-test instructional strategy foster in this school and the social studies classroom. The identification of the problem of practice led to the development of a research focus examining the impact of project-based instruction in a United States history classroom and the accompanying research question: how does the implementation of project-based learning impact critical thinking skills in a United States History classroom? Data included a pre-test and post-test given to both groups of students to determine the development of critical thinking skills among the students. The study produced results with no statistical significance in large part due to the study’s small sample size. The study produced practically significant results however. The study’s findings led to the creation of an action plan that provided a framework for educators to implement project-based instruction in United States history classrooms.

Keywords: action research, project based learning, critical thinking, student achievement, accountability
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CHAPTER ONE

INTRODUCTION

Topic and Background

To learn history is to realize the power of human connections through the study of the activities of the social groups who define our continuous existence and to liberate life’s personal contacts by providing them with context (Dewey, 1916/1997). History is not a body of content to be transmitted and absorbed in isolation but is instead a vehicle to allow students to construct their own meaning. Humans are social creatures, and the academic study of humanity’s social institutions connects individual and group experiences. History taught outside the context of experience results in a curriculum devoid of meaning and disconnected from students’ lives, and students learn best by actively participating and personalizing their learning (Summers & Dickinson, 2012; Tamin & Grant, 2013).

Unfortunately, this pedagogical approach conflicts with the essentialist, behaviorist, standards-based, and content-driven curriculum that defines public education in general and United States history in particular (Berliner, 2011; Roberson & Woody, 2012; Vogler & Virtue, 2007). Essentialism experienced a resurgence with the advent of the accountability movement in public education. Spring (2014) defines accountability as the public reporting of the accomplishments and failures of schooling. Standardized assessments serve as the measure of student achievement and the reporting instrument used to hold schools accountable. Due to the tremendous pressure to prepare students for
standardized tests and to maintain high scores, teachers limit their curriculum and create a
teach-to-the-test culture where students become passive recipients of data, regurgitate
their learning on assessments, and forget it soon afterwards (Vogler & Virtue, 2007).
Regardless of their views on standards and accountability, teachers have a moral
obligation to prepare their students to succeed, and as long as education policy defines
success as through test scores, teachers drive their students towards that numeric goal. I
teach United States history, and at the conclusion of each course, my students complete a
high-stakes test that assesses mastery of the content standards. The assessment carries
significant weight in determining a student’s final average and student achievement on
the assessment provides the primary indication of the effectiveness of the instructor and
instruction.

To meet the demands of standardized tests, teachers cover the curriculum at a
rapid pace; instruction and assessments target the lowest levels of cognition (Au, 2009;
Au, 2011; van Hover, Hicks, & Irwin, 2007). This pedagogical approach results in the
failure to develop critical thinking as teachers sacrifice depth for breadth and skim the
surface of American history (Journell, 2010; Virtue, Buchanan, & Vogler, 2011).
Teachers can quickly and efficiently measure comprehension on objective tests whereas
teaching and assessing problem solving and critical inquiry require time.

The arrival of the accountability movement in public education resulted in a
dramatic shift in curriculum and instruction by creating a standards and standardized
testing obsession. Federal and state mandates result in the narrowing of the curriculum
where teachers focus solely on basic facts and neglect other skills (Vogler, 2006; Vogler
& Virtue, 2007). In order to meet federal and state mandates, administrators and teachers
aligned a top-down, mandated curriculum to standardized assessments, which requires students to master essential knowledge devoid of relevance to their own lives and use high scores on state assessments to create positive public relations. Segall (2006) poignantly compares the challenges of the accountability movement “as the laying of a minefield in front of educators at all levels, who, once in it, could do little more than to find a way to get out of it safely or be blown away” (p. 106). To protect their jobs and reputations, and fulfill their obligation to prepare students, teachers naturally instruct to the test thereby narrowing the curriculum.

The back-to-basics ideology of essentialism drives modern education policy. The process of transforming essentialist ideology into public education policy began with the passage of the Elementary and Secondary School Act (1965) and accelerated in earnest with the publication of A Nation at Risk (1983). This comprehensive indictment of America’s schools prophesizes the collapse of American institutions and ideals without the enactment of wide-ranging educational reforms such as:

1. Designing curriculum based on the Five New Basics (English, mathematics, science, social studies, and computer science) of content courses with minimum course requirements for high school graduation;
2. The adoption of measurable state learning standards and increased assessment of standards mastery through aptitude and standardized tests;
3. Increasing the length of the school day and the school year to give students more time to learn the Five New Basics (Gardner, National Commission on Excellence in Education, 1983).
The publication of this report and reforms based upon the standardized assessments of basic skills became the cornerstone of the Reagan administration’s education policy and the foundation upon which future education initiatives would build. Furthermore, *A Nation at Risk* permanently defined reform as increased content and expanded standardized testing (Vogler & Virtue, 2007).

Even though Congress never passed George H.W. Bush’s America 2000 proposals that called for voluntary content learning standards, universal literacy, safe schools, etc., the initiative gave birth to expansive reform of the *Elementary and Secondary Education Act* (1965) with the *Improving America’s Schools Act*, *Educate America Act*, and the *School-to-Work Opportunities Act*. This Clinton administration legislation mandated that states hold districts and schools accountable “through the use of state assessments that measure student progress towards the new state standards” (Department of Education, 1995). States embedded this foundational knowledge in content standards and clearly defined what students should master mastery through scripted curricula and common assessments. In his examination of accountability’s impact on instructional practices Vogler (2006) explains that “the pressure to produce at least adequate student test results may be the greatest for those who teach the same content tested on their state’s end-of-course examination” (p. 2). The fear of potential sanctions, as a consequence for being labeled ineffective forces teachers narrow their instruction to focus on test-taking strategies and the reduction of content into easily consumed and memorized chunks (van Hover, Hicks, & Sayeski, 2012).

In 2001, the nation saw an additional attempt to reform the 1965 *Elementary and Secondary Education Act* with the passage of the most far-reaching form of
accountability to date, the *No Child Left Behind Act*. According to government data (Bush, Department of Education, 2001), twenty years of accountability and policy since the publication of *A Nation at Risk* failed to close, and in many instances, widened the achievement gap between the wealthy and indigent as well as the gap between whites and minorities (Harris & Harrington, 2006). NCLB aims to close this achievement gap by enacting reforms such as:

1. Increased standardized assessments of students in the elementary grades;
2. A system of reward and sanction for successful and failing schools based on a measure known as Adequately Yearly Progress (AYP);
3. Support for parental choice options and charter schools;
4. Early literacy intervention programs;

The impact of NCLB reforms at the state and local level has been significant. The punitive cycle the law creates guarantees that low-performing schools often located in impoverished areas receive reduced funding and face potential closure by failing to meet standards; while high performing schools often located in affluent areas receive bonuses (Winstead, 2011). The sanction and reward system the law creates widens the very achievement gap it wishes to narrow. Failure to meet AYP requirements can ultimately result in the termination of administration and faculty; in addition, it becomes public knowledge with the publication of school report cards (Peterson & Young, 2004).
The Great Recession that began with the collapse of the housing market in 2008 prompted the final round of education policy initiatives at the Federal level. The Obama Administration’s Race to the Top (RTTT) program provided billions of dollars in grants for states willing to initiate additional accountability measures. States competed for the funding and those awarded initiated reforms such as:

1. The implementation of more rigorous standards and assessment measures through interstate collaboration towards the creation of common learning standards;
2. Revising teacher evaluation and pay to include a student achievement component;
3. Creating data networks that empirically measure student achievement;
4. Turning around low-performing schools through innovative practices such as charter schools;
5. Providing a network of support for teachers and strategically placing teachers in schools where they are most needed (Jones, 2012).

In essence, RTTT served as an avenue around the difficulties of implementing NCLB and shifted the reform focus away from sanctions for those schools and districts that fail to perform to incentives for schools and districts that innovate (McGuinn, 2012). In 2011, the Obama Administration developed waivers that relieved states of the burdens of NCLB, provided the states revamped their standards by embracing the politically-charged Common Core and modified their teacher evaluation systems to include a student growth component.
Ranging from the Johnson Administration’s Great Society to the 21st Century’s RTTT, both political parties have legislated education reform, and each of the aforementioned reform movements possesses distinct similarities. Thomas (2011) describes these reforms as the rise of a new paternalism where schools embrace oppressive standards masked as rigor. These policies have garnered bipartisan support. Despite the fact that simple solutions rarely solve complex problems, these reforms espouse themselves as the silver-bullet to transforming a broken educational system. Perhaps most importantly, each drives education policy further down the path of standards and standardized assessments.

Problem of Practice

The identified problem of practice for my Dissertation in Practice (DiP) stems from the lack of critical thinking skills in social studies that an essentialist curriculum and teach-to-the-test instructional strategy at a suburban high school in South Carolina has fostered since the arrival of the accountability movement in United States public schooling. This dramatic shift in pedagogical practice has impacted South Carolina’s curriculum content and teachers’ pedagogical practices by creating a standards and standardized testing obsession designed to hold both students and teachers accountable for federal and state mandates. The scholarly literature supports the notion that social studies curriculum and pedagogy has narrowed and that the current trend is to focus solely on basic facts and neglect other skills (Virtue, Buchanan, & Vogler, 2012; Vogler, 2006; Vogler & Virtue, 2007). In order to meet federal and state mandates, the school adopted a top-down, state-mandated social studies assessment. This assessment requires high school students to master essential knowledge devoid of relevance to their own lives
and use high scores on state assessments to create positive public relations but it does little to support the teaching of critical thinking skills (Au, 2009, 2011). Segall (2006) poignantly compares the challenges of the accountability movement “as the laying of a minefield in front of educators at all levels, who, once in it, could do little more than to find a way to get out of it safely or be blown away” (p. 106). Following Segall (2006), the identified Problem of Practice for the present study includes an investigation of the tensions created by this school’s efforts to teach critical thinking skills in the social studies classroom. For example, many of the school’s social studies teachers risk reputations to move away from the teach-to-the-test mentality and embrace a progressive curriculum.

**Study Rationale**

Teaching critical thinking has profound importance in public education. Critical thinking development provides students with the skills they need to make decisions in a rapidly changing world, discover solutions to social justice problems, and develop into lifelong learners (Ku, 2009; Renaud & Murray, 2008; Tsui, 2002). Teaching critical thinking skills in the social studies classroom prepares students to become independent thinkers and voters who become engaged in the political and social issues of democratic society (Levine, 2010; Westheimer & Kahne, 2004). Tanner (2013) explains that the essentialist curriculum’s retrenchment to basic academic skills and testable, factual knowledge represents a return to the drill-and-kill pedagogies of the 19th century and inevitability neglects the development of higher levels of cognition. In social studies classes in particular, high-stakes assessments rarely target students’ ability to think critically (DeWitt et al., 2013; Gerwin & Visone, 2006). The mandated curriculum
forces teachers to focus on the lowest levels of cognition in order to effectively cover the standards and acquire the maximum of amount of textbook information and content knowledge (Au, 2009; Au, 2011; Ku, 2009; Marin & Halpern, 2011). My problem of practice—a standards and high-stakes assessments-driven curriculum that neglects the development of critical thinking—has been decades in the making. This study’s significance lies in the examination of the project-based approach’s impact on these forgotten skills.

**Purpose Statement**

Implementing a progressive pedagogy such as project-based and problem-driven instruction at this school, however, will provide an alternative approach to fostering critical thinking development in the social studies classroom in general and the United States history classroom in particular and provide the skill development students need to become active participants in democratic society (Dewey, 1916/1997). The purpose of my action research study is to examine the potential benefits of project-based learning.

**Research Question**

To examine the potential effects of project-based learning, I ask the following research question: How does the implementation of project-based learning impact critical thinking in a United States history classroom?

**Theoretical Framework**

The progressive discourse of curriculum design, the project-method, the psychological theory of constructivism, and the critical thinking model of the revised Bloom’s Taxonomy form theoretical framework that supports the present action research
study. Chapter 2 provides a thorough exploration of these theories and theorists through a review of related literature.

**Essentialism.** Essentialist curriculum theories and behaviorism provide the theoretical framework of the standards and accountability movement. Delivering an address at the height of the Great Depression, essentialist pioneer William Bagley (1938) criticized the progressive approach, including the project method, and argued instead that education reform should focus on guidance, discipline, and the instruction of fundamentals in order to prevent chaos and preserve American ideals. While not totally discounting process, Bagley argued that knowledge existed beyond the learner and academic content must remain a central feature of the curriculum. Modern Essentialist and former United States Secretary of Education William Bennett (1987) espouses the back-to-basics point-of-view perfectly when he asserts that the reform answer is “more testing, lots of homework, longer hours, tougher discipline…[t]each the basics—reading, mathematics, writing” (p. 139). In the 21st century, education critics offer the same critique, as evidenced in bipartisan education policy stressing content-driven curricula and testing. The essentialist platform creates the testing-obsessed culture that forces teachers to abandon instruction that promotes critical thinking in favor of rote memorization.

**Behaviorism.** The behaviorist views of educational psychologists such as B.F. Skinner (Swaim, 1972) categorize learning through the lens of observation and mesh well with the essentialist approach. Teachers provide the stimuli and student learning becomes observable and measureable. Since 1960, educational psychologists and school districts have exhibited an almost religious dedication to behaviorism. This approach
cheats teachers and students as it proves limited in scope in the complex environment of the classroom (Jones, 2002). How do stake holders—policymakers, schools, and school districts—measure student achievement? Lesson plans exhibit observable objectives. Selected-response tests easily quantify student learning. Student learning becomes a number that serves as accountability’s foundation. The stimulus-response model creates a curriculum that neglects students’ prior experiences and promotes instruction that targets the lowest levels of cognition, levels often easily measured. Even the state standards are written in the subject, verb, and objective format (Anderson, 2005), with the objective being that which the measurement assesses and quantifies.

**Progressivism.** The progressive discourse stands in stark contrast to the standards, assessments, and accountability of the essentialist model, and it is out of this ideology that the project method emerges. Progressive educators trace their roots to the educational philosophy of John Dewey and his colleagues. All genuine education arises out of experience (Dewey, 1938/1997) and given the individual nature of experience, effective pedagogy targets individual interests and experiences. Curriculum is student-centered and aims to provide the necessary experiences to connect child to community and create agents for reform. Like Bagley, progressive and social reconstructivist educators espoused their theories during one of the most difficult eras in American history, the Great Depression. In contrast to Bagley, progressives claim that education holds the potential to solve social problems, and an educated and socially connected populace strengthens democratic institutions.

Dewey’s *How We Think* (1910/1991) discusses the importance of reflective thought in the educational process and claims that through active investigations learners
find solutions to complex problems. Reflection requires thinking about thinking, and moves learning far beyond the lowest forms of cognition the behaviorist and essentialist classroom typically targets. Reflection requires investigation; the student must actively pursue truth. Teachers present their classes with problems and guide their students towards hypothesis development and problem-solving (Sutenin, 2013). The progressive framework will also shape my research methodology as action research also finds its roots in the Progressive curriculum discourse through John Dewey’s experimentalism (Helskog, 2014).

William Heard Kilpatrick, Dewey’s colleague, further defined this investigative process through his project method. Kilpatrick’s “purposeful act” engages the student in meaningful activity geared towards a goal (1918/2013). The learner does not passively absorb material; they actively participate in their own learning. Kilpatrick’s argument for this pedagogy becomes poignant when he contrasts its effectiveness with the description of the traditional classroom as a bore, the traditional teacher as the enemy, and the traditional school as a system of oppression (1918/2013). Writing in the final year of the First World War, Kilpatrick arguably describes the experiences of many 21st century students trapped in classrooms subjected to disconnected curricula grounded in essentialism and behaviorism (Harada, Kirio, and Yamamoto 2008).

**Constructivism.** Progressives ground their ideology in the constructivist psychological theories of Jean Piaget (2003) and Lev Vygotsky (1978). Often referred to as the founder of constructivism, Piaget (2003) criticizes the inability of the stimulus-response model to adequately explain cognition since cognitive development occurs in stages, each linked and influenced by experience. Piaget’s Constructivism claims
learning builds on prior experience and the job of the teacher is to create cognitive conflict in the students’ mind that challenges pre-conceived assumptions (Bachtold, 2013). Students must reflect on their own learning. Vygotsky (1978) further explains that learning occurs within the zone of proximal development, the larger environment where students build upon prior learning and reach complex levels of development through cooperative interaction. Behaviorist classrooms feature teacher-created stimuli and passive student responses. Constructivist classrooms feature student-centered opportunities where teachers guide “the learner to actively engage in meaning-making” (Ultanir, 2012, p. 196).

**Critical Thinking.** Due to the absence of an operational definition, researchers use diverse concepts to define critical thinking (Petress, 2004). The present action research study employed the revised version of Bloom’s taxonomy created by Dr. Lorin Anderson (1999) and Dewey’s (1910) definition of reflective thinking as the theoretical framework for critical thinking. Like the original taxonomy, each step in the process increases in cognitive complexity, but “problem solving plays a much larger role in the revised version” (Anderson, 1999, p. 10). The final stages, *Evaluating* and *Creating*, emphasize student-centered, reflective and active learning that fits well within the scope of project-based instruction. Creating conflict and challenging students to look past their own pre-conceived reality to solve problems relates clearly to Dewey’s definition of true reflection. The behaviorist approach employed to meet the needs of accountability targets the lowest levels of the revised taxonomy, *Remembering* and *Understanding* and the End-of-Course Test reflects how well students accomplish this (Anderson, 2005).
Incorporating instruction that challenges student assumptions and requires them to solve problems through their own uniquely-designed projects reinforces critical thinking skills.

**Action research methodology.** Action research methodology, as opposed to traditional research, provides the best framework to conduct my study and answer my research questions. Action research is a generalized phrase that has emerged from several research traditions (Herr & Anderson, 2005). Action research is research done by teachers for teachers who seek to gather information about how they teach and how their students learn (Mertler, 2014). Action research represents the blend of traditional and applied research with each mutually benefitting the other (Snyder, 2009) and differs from traditional research in that the researcher embeds themselves within the “actions” of teaching and learning. As the practitioner and researcher, I have the unique advantage of controlling the research while simultaneously participating in the process. External validity, while important for large-scale studies, becomes secondary as “those who engage in action research projects are often more interested in generating knowledge that can be fed back into the setting under study than generating knowledge that can be shared beyond the setting” (Herr and Anderson, 2005, p. 6). The present study focused solely on improving curriculum and instruction within the research context, and the creation of new knowledge, the focus of traditional research, was a secondary goal. Additionally, I teach social studies full time in a South Carolina public school, and my immersion within the research field—the classroom—makes action research the appropriate methodology for my study.

This study focuses on solving the problem of practice of the abandonment of critical thinking by modifying instruction with a progressive pedagogy centered on
project-based learning implementation. Action research contrasts with traditional research in that it is cyclical while traditional research is linear (Mertler, 2014). This study design followed the cyclical action research model of planning, acting, developing, and reflecting:

- Phase one of the study involved identifying the problem of practice and a research focus through a thorough review of related literature and the formulation of the research plan (Chapter 2);
- Phase two involved the collection and analysis of data—the implementation of the research plan;
- Based upon the data gathered, the third phase entailed the implementation of pedagogical changes through an action plan designed based upon the study’s findings;
- Phase four of the model involved reflection of the study and an analysis of effectiveness including any problems, revisions, and further questions that guide future research (Mertler, 2014).

Dana and Yendol-Hoppey (2014) explain that “meaningful teacher inquiry should not depart from the daily work of classroom teachers but become a part of their daily work” (p. 85). By grounding the present study in the action research methodology, it maintained the internal validity features of traditional research while providing the benefit of immediate application to the contexts of instruction and student learning. Researchers select the action research model because they are passionate about their topic and want to conduct their study outside the comforts of their own office (Herr and
Anderson, 2005). The classroom setting and my unique role as both researcher and participant made action research the appropriate methodology for this study.

**Study Limitations and Significance**

Several limitations influenced the study’s results. The structure of the school environment necessitated the use of convenience sampling making randomized sampling impossible. Additionally, the small class sizes during the data collection time frame yielded small samples sizes and limited the study’s statistical power. Curriculum and time restraints necessitated the use of a single intervention implemented over a five-day interval instead of multiple interventions or a single intervention over an extended period. Time constraints prevented the alternation of treatment and control groups. Allowing both classes to serve as the treatment and control groups would have strengthened the cause and effect inference between project-based instruction and critical thinking improvement assuming both groups produced higher mean pre-test/post-test score differentials after completing the treatment. Without this alternation, the researcher did not eliminate the influence of extraneous variables. For the purposes of this study, the researcher acknowledged the limited influence of extraneous variables that may have affected study results.

Extraneous variables such as prior exposure to critical thinking instruction may have impacted study results. A more rigorous course load may have been exposed students to instructional strategies that already promote critical thinking. Teachers in previous courses could have required students to complete document-based or argumentation essays similar to those that students completed on the pre-test and post-test; students that took those courses would be better equipped to complete the DBQ pre-
test and post-test in the present action research study. Even though students in both
groups took the post-test after exposure to the content, prior educational experiences may
have exposed some of the students to the content on the post-test and created a degree of
comfort on the assessment that other students without prior experience may have lacked.
The study also assumed students put forth their best effort on the pre-test and post-test
assessments, but with no extrinsic motivation such as a grade, lack of effort and
concentration may have impacted the study’s findings (Fliegel & Holland, 2013; Renaud
& Murray, 2008).

Within these limitations, the present action research study proved practically
significant as an examination of the impact of a progressive pedagogy on critical thinking
in a unique context as well as an avenue to advance social justice. As Tamin and Grant
(2013) and Savery’s (2006) studies indicate, project-based instruction implementation
fosters critical thinking. The present study examined its impact in this unique research
context, a United States history classroom in a suburban South Carolina high school.

The problem-solving component of project-based instruction also exposes
learners to contemporary social justice issues (Grant, 2011; Hanney & Savin-Baden,
2013). The study’s project-based learning intervention required students to evaluate
solutions to the social justice problem of ethnic conflict. The study embedded the social
justice component within the context of content focusing on 19th century Native
American removal during Westward Expansion. Despite students’ ability to make
connections between the content and the social justice problem, the intervention design
did not allow for student personalization of the social justice problem. The study’s
subsequent action plan incorporates an even greater social justice component through a
personalization piece that requires learners to use assigned content to analyze how historical trends and policies impact a marginalized group of their choice, how this group remains marginalized today, and what potential solutions potentially create inclusiveness for their group.

**Summary and Conclusion**

The present action research study revealed a higher score differential between the pre-test and post-test scores for the treatment group than the control group. The study’s results proved to be practically significant despite the inability of an independent t-test to determine statistical significance. The study produced several key questions that merited further analysis:

1. How can the social studies faculty advance best practices within the department?
2. What study changes or modifications will promote a more compelling inference of the relationship between project-based instruction and critical thinking?
3. What instructional changes will lead to increase authenticity and advance social justice?
4. How can project-based instruction further advance reflective thinking?
5. How can United States history teachers in particular overcome their hesitation to implement progressive pedagogies such as project-based learning in an environment grounded in accountability?

These key themes guided the creation of an action plan to facilitate educational change during the final phases of the action research cycle.
The study’s problem of practice centered on the absence of instruction targeting critical thinking skills due to the demands of accountability. The research focus examined the impact of project-based learning in a suburban South Carolina United States History classroom by answering the following research question: how does the implementation of project-based learning impact critical thinking skills in a United States history classroom? Historically, across my state and in my school, students struggle on the End-of-Course Test. Projects that use history as the context to solve real-world problems help reverse this trend as improved achievement on standardized tests becomes the natural byproduct of project-method implementation (Solomon, 2003).

**Glossary of key terms**

**Accountability:** A term used to describe increased government oversight of education at all levels. Accountability consists of clearly defined learning standards, standardized assessments to measure student progress, and punitive sanctions for failure to meet learning goals (Vogler & Virtue, 2007).

**Action Research:** A participatory and cyclical research methodology where the researcher embeds themselves within the study, collects and analyzes data, and uses the data to develop a plan of action to implement solutions to the problem of practice (Herr & Anderson, 2005; Mertler, 2014).

**Artifacts:** The digital (webpages and electronic presentations) and analog (essays and posters) representations of student learning. Artifacts symbolize both the solution to the driving question or problem and the inquiry process (Grant & Branch, 2005).

**Critical thinking:** The operational definition of the construct of critical thinking varies. For the purpose of the present action research study, critical thinking encompasses the
learner’s ability to reflect upon their own learning and solve problems through analysis of the problem, evaluation of potential solutions, and the creation of learning artifacts that represent his or her learning (Anderson & Krathwohl, 2001; Dewey, 1910/1991).

**High-Stakes Tests:** A feature of the accountability movement, these standardized assessments are designed to measure student mastery of content standards and can be used to make decisions about student grades and promotion as well as teacher salary and retention (Au, 2009).

**Integrated Performance Assessment (IPA):** A performance-based assessment model developed in the foreign language disciplines that incorporates three phases: the interpretive communication phase, the interpersonal communication phase, and the presentational communication phase (Adair-Hauck, Glisan, Koda, Swender, & Sandrock, 2006).

**Performance-based assessment:** A variety of tasks and situations where students have opportunities to apply knowledge and skills in a variety of contexts through the creation of tangible products (Marzano, Pickering, & McTighe, 1993).

**Project-based instruction:** A learner-centered instructional strategy grounded by a driving question or problem that requires learners to conduct inquiry and create artifacts representative of their learning (Grant, 2011).

**Problem-based learning:** A learner-centered instructional strategy that requires learners to conduct inquiry and apply knowledge and skills in order to develop solutions to a defined problem (Savery, 2006).
**Social justice:** A concept that analyzes discrimination, equity, and oppression within the educational context and focuses on inclusion, processes, and content from a critical point-of-view (Carr, 2007).

**21st century skills:** Critical thinking development, problem-solving, and collaboration with other learners through the use of digital mediums to solve complex problems (Bell, 2010).
CHAPTER TWO

REVIEW OF RELATED LITERATURE

Introduction

This chapter will include a detailed review of literature related to the study’s problem of practice as well as provide a theoretical and historical framework for the present action research study. The study’s problem of practice arose specifically out of federal and state mandates’ impact on curriculum and instruction in a United States history classroom. Accountability and accompanying high-stakes assessments create feelings of stress, alienation, and guilt among teachers (Smith, 1991). Teachers face the pressures of conforming to state standards as student test results determine teacher employment decisions and salaries as well as student promotion and graduation. Wayne Au (2009, 2013), whose extensive research closely studies the impact of high-stakes tests on curriculum and classroom teachers, explains that high-stakes testing narrows the curriculum and aligns instruction to the test. In the social studies classroom, this approach often results in rote memorization of historical trivia.

A disconnect exists between policymakers and educators. Accountability measures create distance between teachers and policymakers as high-stakes tests serve as a means of control by state legislators over school districts and school policy (Airasian, 1987). Testing provides the public the opportunity to scrutinize results and to create the belief that students who graduate have basic competencies that prepare them to be contributing members of society (Vogler, 2006). The testing culture “disempowers and
disenfranchises teachers,” and these powerless teachers reduce the curriculum to the barebones of instruction as they lack instructional time to teach beyond the basics and advance critical thinking (Au, 2011, p. 30). Gerwin and Visone’s (2006) action research study reveals that teachers with courses linked to high-stakes tests focus more on content-driven, concrete learning while teachers in non-tested courses focused much more on complex thinking. Teachers align curriculum to the assessment, and critical thinking suffers in the process.

High-stakes accountability tests, particularly in the social studies curriculum, measure at best trivial learning since state curricula encompasses far more content then the exam can assess (Grant, 2006a; 2006b). The breadth of material from which potential test questions emerge drives teachers in the present research context to move quickly through content and target instruction at the lowest levels of cognition. Bloom (1994) explains that by targeting complex cognitive processes, lower-level skills can be learned simultaneously. Implementing a social studies pedagogy designed around project-based instruction in the context of content allows students to create projects that represent their learning, present solutions to social problems, and simultaneously master the content assessed by high-stakes tests.

**Problem of practice.** The identified problem of practice for my Dissertation in Practice (DiP) stems from the lack of critical thinking skills in social studies that an essentialist curriculum and teach-to-the-test instructional strategy at a suburban high school in South Carolina has fostered since the arrival of the accountability movement in United States public schooling. This dramatic shift in in pedagogical practices results in the narrowing of curriculum as teachers focus on facts and neglect critical thinking.
(Virtue, Buchanan, & Vogler, 2012; Vogler, 2006; Vogler & Virtue, 2007). In order to meet federal and state mandates, the school’s administrators across the state and in the present research context adopted a top-down, state-mandated social studies assessment. This End-of-Course assessment focuses little on critical thinking and instead encourages a teach-to-the-test approach as the school bureaucracy places emphasis on public relations (Au, 2009, 2011). Segall (2006) poignantly compares the challenges of the accountability movement “as the laying of a minefield in front of educators at all levels, who, once in it, could do little more than to find a way to get out of it safely or be blown away” (p. 106). The present study’s problem of practice includes an investigation of the tensions created by this school’s efforts to teach critical thinking skills in the social studies classroom. For example, many of the school’s social studies teachers risk their jobs and reputations to move away from the teach-to-the-test mentality and embrace a progressive curriculum.

**Study rationale.** Instructional strategies that promote critical thinking development provide students with the skills they need to make decisions in a rapidly changing world, discover solutions to social justice problems, and develop into lifelong learners (Ku, 2009; Renaud & Murray, 2008; Tsui, 2002;). The social studies classroom in particular presents unique opportunities for students to develop critical thinking skills to become independent thinkers and voters who become engaged in the political and social issues of democratic society (Westheimer & Kahne, 2004; Levine, 2010). Unfortunately, standards and the high-stakes tests that accompany them interfere with critical thinking instruction, and an essentialist curriculum founded in basic facts exacerbates the problem.
**Purpose statement.** Implementing a progressive pedagogy such as project-based and problem-driven instruction at this school, provided an alternative to essentialist teaching and embraced an approach to fostering critical thinking development in the social studies classroom through an examination of the potential benefits of project-based learning. By becoming critical thinkers, students develop the skills they need to become active participants in democratic society (Dewey, 1916/1997).

**Research question.** To examine the specific effects of project-based learning, the present study asked the following research question: How does the implementation of project-based learning impact critical thinking in a United States history classroom?

**Importance of the Literature Review**

The following review of literature provides a contextual, instructional, and theoretical framework for this action research study. The review of related literature is paramount as it allows the action researcher to frame the study within a context that “synthesizes theoretical perspectives and investigations related to a particular area of inquiry and demonstrates the motivation for the study to be reported” (Kucan, 2011, p. 230). The context the literature review creates provides the justification for the study and introduces the action researcher to the preliminary data necessary to guide the research focus and develop the research question(s) (Boote and Beile, 2005; Mertler, 2014; Wisker, 2015). Gleaning data from relevant research and its findings reveals a path forward as the action researcher designs and delimits their study. Mertler (2014) explains that the literature allows the action researcher to become more effective and efficient with their research by taking advantage of the insights of prior studies.
The literature review provides both the theoretical and historical frameworks for the study. When defining the theoretical framework, Kennedy (2007) and Mertler (2014) explain the importance of distinguishing knowledge from lore and the benefits of both types of sources. Primary sources consist of firsthand accounts of original research and secondary sources, or lore, as summaries of primary research (2014). By incorporating both in the literature review the action researcher provides a comprehensive portrait of the body of research. When placing their study in the historical context, action researchers link their research to both prior and current studies in the field that seek to answer similar research questions, solve similar problems of practice, and reveal areas where additional studies may be needed (Boote & Beile, 2015).

Framing the present study within the context of prior research also places it in the appropriate methodological framework. Whether the study is qualitative, quantitative, or mixed methods greatly influences the design of the literature review (Denney & Tewksbury, 2013). This study collected quantitative data through pre-test and post-test test scores; and consequently this literature includes studies collecting the similar data, particularly in the measurement of critical thinking. When including quantitative studies the researcher should discuss both the outcomes of the study as well as the manipulations of variables to determine the outcomes (2013).

The literature review also reveals the action researcher’s point-of-view and provides the argument’s justification for the reader. The selection of sources, the direction of research, and the line of reasoning reveal the author’s voice, since as Wisker (2015) explains the literature review emphasizes argumentation and provides the medium to defend the study. The literature review provides the author the opportunity to
convince the audience that the chosen line of reasoning is sound and that the proposed study serves as a logical next step in the advancement of further research (Kucan, 2011).

**Action research methodology.** I designed the present study within the action research paradigm. Action research is a generalized phrase that has emerged from several research traditions (Herr & Anderson, 2005) with origins that trace back over half a century. Social psychologist Kurt Lewin first coined the phrase when defining the research as a means to bring about social change (Helskog, 2013; Herr & Anderson, 2005; King & Lonquist, 1992; Snyder, 2009). The scientific diagnosis of traditional research is not enough in the social sciences; the diagnosis must also be accompanied by practical studies examining the techniques of change (Lewin, 1946). Traditional research, while externally valid, is often impractical when applied to specific social problems. Action research is a paradigm that provides a theory of research grounded in inquiry and problem-solving (Herr & Anderson, 2005). Helskog (2013) firmly frames action research within the progressive discourse when he reiterates famed educator John Dewey’s view that ideas without action are worthless and should exist only as a means to reconstruct the world. Dewey’s criticism applies to traditional research in particular whose goal is the discovery of new knowledge, not immediate application to society, or more specifically, the classroom. Paulo Freire’s (1970/1995) *Pedagogy of the Oppressed* identifies action research as a path to liberation. Speaking to the poor in his native Brazil, Freire espoused thematic research projects aimed at teaching literacy to the masses and equipping them with the tools necessary to enact social change and end their oppression (1970/1995).
Action research has immediate applications in educational contexts. Teachers often conduct action research in the classroom to gather information about how they teach and how their students learn; it represents the blend of traditional and applied research with each mutually benefitting the other (Mertler, 2014; Snyder, 2009). It differs from traditional research in that the researcher embeds within the “actions” of teaching and learning. External validity, while important for large-scale studies, becomes secondary as “those who engage in action research projects are often more interested in generating knowledge that can be fed back into the setting under study than generating knowledge that can be shared beyond the setting” (Herr and Anderson, 2005, p. 6).

Publications by Helskog (2013) and Herr & Anderson (2005) both acknowledge the tremendous diversity in the types of action research within the field of social science including, but not limited to, the socio-technical, pragmatic-dialogical, and the practitioner-researcher movements. The practitioner-researcher tradition grounds my study. This tradition, unique to North America, arose out of a rejection of the quantitative-only approach to research and the deskilling of teachers in the age of accountability (2005).

Action research contrasts with traditional research in that it is cyclical while traditional research is linear (Mertler, 2014). Essentially, the action research cycle mirrors the academic inquiry process. A study and the accompanying results should lead to further questions and future studies. The present action research study focused on solving the problem of practice by modifying instruction with a progressive pedagogy centered on project-based instruction. The study followed the cyclical action research model of planning, acting, developing, and reflecting as defined by Mertler:
1. Phase one—*planning*—involves identifying the problem of practice and a research focus, creation of the literature review, and the research plan;

2. Phase two—*acting*—involves the collection and the analysis of the data’s implications;

3. Phase three—*developing*—involves the implementation of changes in pedagogy through the creation of an action plan based upon research findings;

4. Phase four of the model—*reflecting*—involves an examination and revision of the research process and necessary steps to renew the action research cycle (2014).

**Contextual Framework**

*What is project-based instruction?* The project method and inquiry learning trace their roots to the progressive movement and progressive educators William Heard Kilpatrick and John Dewey (Sutenin, 2013). William Heard Kilpatrick, Dewey’s colleague, defines the investigative process leading to authentic experiences through his project method. Kilpatrick’s “purposeful act” engages the student in a meaningful activity towards a goal (1918/2013). Students no longer reflect the passive, absorbing attitude found in classrooms grounded in content-driven curricula (Dewey, 1897/2013); the project becomes the vehicle to solve the problem and accomplish the desired goal. Students design projects and construct their learning based upon their own unique experiences, and their work becomes an extension of themselves. When assignments require students to elaborate beyond objective questions typically found on End-of-Course Tests, project-based instruction proves to be the most effective pedagogy (Strobel
& van Barneveld, 2008). Kilpatrick’s argument for this pedagogy becomes poignant when he contrasts its effectiveness with the description of the traditional classroom as a bore, the traditional teacher as the enemy, and the traditional school as a system of oppression (1918/2013). Writing nearly a century ago, Kilpatrick arguably describes the experiences of many contemporary students.

Some division exists over the operational definition of project-based instruction and its compatibility with the more established pedagogy, problem-based learning (Hanney and Savin-Baden, 2013). Problem-based learning employs a rationalist approach while project-based instruction is by nature broad, with little theorization (Hanney & Savin-Baden, 2013). Problem-based learning traces its roots to the academic study of medicine (Belland, French, & Ertmer, 2009; Savery, 2006; Strobel & van Barneveld, 2009). Research defines problem-based learning in a variety of forms, but Hanney & Savin-Baden (2013), Ertmer & Simons (2006), Savery (2006), and Stroble & van Barneveld (2009) explain that all versions employ the use of problems to

1. Deepen content understanding;
2. Develop critical thinking skills;
3. Create a student-centered pedagogy;
4. Integrate curriculum;
5. Promote collaboration; and
6. Acquire new knowledge.

Project-based instruction incorporates many of the same goals including the integration of collaboration, a deep understanding of the material, and guided student learning through self-direction and regulation (Grant, 2011; Lehman, George, Buchanan
& Rush, 2006). Behizadeh (2014) connects project-based instruction to Freire’s liberatory education as it allows students to construct their own learning experiences and develop critical thinking skills. Project-based instruction is the natural extension of problem-based learning. In order for project-based instruction to serve as an authentic instructional strategy, it must not only include the creation of artifacts as symbolic of learning, but it must be framed with a student-created driving question or problem (Grant, 2011). The project-based interventions in the current action research study featured problem-solving components. Both problem-based learning and project-based instruction emphasize student inquiry (Savery, 2006), and for the purposes of this study, the theoretical underpinnings of each pedagogy cohesively frame the research.

**The benefits of project-based learning.** This action research study analyzed the impact of the implementation of project-based instruction on critical thinking skills in a United States history classroom. An analysis of literature revealed project-based instruction’s additional benefits beyond critical thinking including improved student achievement, curriculum relevancy, opportunities to differentiate instruction, the acquisition of 21st century skills, and a clear focus on social justice issues.

**Impact on student achievement.** Implementation of project-based instruction affects student achievement as measured by standardized assessments. Geier et al., (2008) describe in their research the impact of project-based instruction on student achievement in science classes in urban environments. The study chronicles the impact of a three-year inquiry-based science curriculum on students in the Detroit Public Schools, a predominantly minority school district plagued by high dropout rates and poverty (2008). Students exposed to the inquiry-based treatment condition outperformed
their peers that received traditional instruction on the Michigan Education Assessment Program (MEAP) (2008). Summers and Dickinson’s (2012) mixed methods longitudinal study compared two high schools: one school fully incorporated a project-based instruction curriculum while the second school maintained a curriculum grounded in traditional instruction as defined by teacher-centered, content-based instruction. Using state social studies achievement tests as the measurement, the study concluded that the project-based curriculum “provided a rigorous alternative to traditional instruction and increased students’ academic achievement” (Summers & Dickinson, 2012, p. 98). The majority of standards-based curricula target the lowest levels of cognition and the assessments that test them prove how well students recall this information (Anderson, 1999). Strobel and van Barneveld’s (2009) qualitative meta-synthesis agrees that inquiry-based learning results in long-term retention and internalization of content, but also concludes that for assessments requiring recall of short-term facts, the drill and kill method of traditional instruction yields higher results. Designing a curriculum around project-based inquiry that targets higher levels of cognition naturally improves students’ ability to internalize their learning beyond the limits of mandated curricula and assessments (Bloom, 1956/1994), but the pressure to produce testing results discourages innovation.

**Curriculum relevancy and student motivation.** A curriculum designed around project-based inquiry also breathes life into a moribund curriculum disconnected from students’ unique experiences. Students who do not finish high school often cite a pointless curriculum as a chief reason (Harada, Kirio, & Yamamoto, 2008). They see limited application of the school curriculum in their own lives—a reality often true in the
social studies in general and U.S. history in particular. Limiting curriculum to the standards in isolation perpetuates the problem. Students continuously ask why they need to know a particular historical concept. Solomon (2003) explains that students discover their learning is valuable when they can make connections to real-life problems that require adult skills.

Students lose interest and underperform when learning content serves solely as the means to do well on a test (Larmer & Mergendollar, 2010). Immersing students in authentic learning contexts and real-world problem-solving (Blumenfeld et al., 1991; Larmer, 2014; Solomon, 2003) returns relevancy to the curriculum and this relevancy creates student motivation. Tamin and Grant’s (2013) case study of project-based instruction implementation with pre-service teachers reveals that students working with projects took greater pride in their work and were more motivated to complete the assigned task.

**Differentiation.** Project-based instruction implementation also individualizes teaching and learning by accommodating diverse intelligences, learning styles, demographic backgrounds, and ability levels. Differentiation occurs when teachers engage in a multi-step process where they create projects that embrace the constructivist learning model (Painter, 2009). Mandated curriculum and assessments fail to do this as students perform a content-driven, predetermined task. Grant and Branch’s (2005) study of how individual student abilities and differences influence the creation of digital artifacts concludes that the flexibility of the project-based instruction environment allows students to utilize their unique intelligences to create artifacts that reflect their learning and take full advantage of their individual abilities. Additionally, Tamin and Grant’s
(2013) case study also reveals that project-based instruction exposes students’ unique abilities “that would otherwise [remain] unnoticed in a traditional learning and testing environment” (p. 82).

The closed-end assessments that accompany accountability limit diversity and ignore students’ multiple intelligences and ability levels. Diversity in assessment is essential (Anderson, 1999) and project-based instruction creates opportunities to meet this challenge by embedding student choice within the assessment process. Project-based instruction allows students to perform at their full potential rather than completing assessments that ignore their best qualities (Hunaiti et al., 2010). When teachers offer students choices within the project-based learning framework they create opportunities for students of multiple intelligences to succeed with options designed to maximize their abilities.

Project-based instruction also allows for a multicultural curriculum. Schools and curricula should reflect society; accepting diversity serves as the foundation for a more comprehensive human experience (Miller & Sessions, 2005). Standards and accompanying assessments that mainly address a single segment of the population ignore increasingly diverse classrooms. The project approach creates opportunities to promote diversity. Project options that promote inclusion for marginalized populations go beyond the standards and create a more accurate portrayal of American history as well as further personalizing the learning process.

**21st century skills.** Project-based instruction also introduces learners to the knowledge and skills they need to succeed in the 21st century. These “real-world” skills include the ability to think critically, work in collaboration with others, and manipulate
technology to solve complex problems (Bell, 2010). Project-based instruction allows journeys beyond facts where students can discover how their knowledge translates into skills applicable to their future. Collaboration—a valuable skill in the 21st century—allows students to synthesize their classmates’ learning with their own. Students have the opportunity to develop their collaborative skills through projects (McDonald, 2008).

Collaboration is a central component to the pedagogy as students work with others to apply knowledge to the problem and reflect their learning within the parameters of project-based learning (Savery, 2006).

Students also incorporate technology during the research and artifact creation phases of the project. Exposure to these 21st century skills adds additional purpose to the assignment (Larmer & Mergendoller, 2008) and presents content in medium contemporary learners manipulate daily. Technology also creates additional opportunities for collaboration through virtual conferences, social media, and digital platforms that place learning in a real-world context and create digital platforms for project creation (Bell, 2010). Students create electronic art, music, and text, and can publish their finished work on the web through student created websites and blogs (Solomon, 2003). The present action research study required students to publish content on the class Wiki space.

As digital natives, today’s students embrace and use technology to present their products to the community, and as Larmer and Mergendoller (2010) explain, when students prepare projects for public presentation they become much more concerned about quality. Presenting and sharing ideas or digital artifacts with the larger group increases student motivation to learn content. Students live in a technology-driven world,
and process information much differently than previous generations, yet traditional curriculum and assessment disconnects students from their content (Hill, 2014). Technologies are not just enrichment tools, but a central feature of the new cultural norm that permeates every area of our lives (2014). Project-based instruction increases relevancy and makes technology integration a key focus of the learning experience. When students see the relevant application of the skills project-based learning requires, their motivational level increases.

**The Advance of Social Justice.** When the curriculum tells the story of history through the point-of-view of conquerors, the curriculum finds ways to excuse the elimination of minority groups in the name of progress (Zinn, 1995). Incorporation of a project-based, problem-driven pedagogy also allows educators the opportunity to teach social justice issues as a foundational component of the curriculum. While family, government, and economic forces reproduce the status quo for subsequent generations, education serves as the primary instrument in the socialization of America’s youth and holds the promise to stabilize the social order and promote social justice (Weber, 2010). Students enter schools from diverse backgrounds and “[s]chools and classrooms have operated in such a way as to maintain or exacerbate” these differences (Rivera, 2006, p. 80). Through content standards, most courses teach the irrelevance of minority groups. Social studies classes, however, present unique opportunities to teach diversity and social justice. How social studies curricula address racial, gender, class, and sexual differences contributes to the creation of a national civic identity of inclusiveness (Crocco, 2003). Unfortunately, the United States history standards in my state (2011) consist of eight content standards with 43 specific indicators, and of these indicators only eight focus
specifically on issues of race, four focus on indigenous people and immigrants, six make cursory mention of gender issues, four identify issues of income disparity, and none discuss sexual equality.

Racial bias in the social studies curriculum reflects the values society embeds within students. Curry (2008) explains that integration of the schools served the purpose of allowing black students to enter the realm of white establishments, not racial equality. An idealistic approach to race relations that frames the discussion around historical events such as the Civil Rights movement ignores the obstacles people of color continue to face today and perpetuates a system that promotes the dominance of “whiteness” (Smith, 2010; Williams, 2010). According to Ladson-Billings (1998), studies of racism “must be made explicit so that students can recognize and struggle against this particular form of oppression” (p. 19). The curriculum’s failure to address race contextualizes racism as overt acts that occurred in the distant past, localizes and individualizes discrimination, and perpetuates white privilege. Crowley and Smith’s (2015) case study of the attitudes of white pre-service teachers regarding the prevalence of white privilege underscores the point. Most of the study’s participants claimed that macro-level racism did not exist and contemporary racism stemmed from the action of individuals.

Whiteness derives its power from its invisibility to those who benefit, and a social studies curriculum that fails to challenge students to connect historical macro-racism to the present reinforces the status quo (Crowley & Smith, 2015). Howard’s (2004) qualitative study further exposes the lack of topics surrounding race in the curriculum through an examination of student attitudes towards racial dialogue. In contrast to traditional pedagogies, the teacher in the study incorporated race as a key component of
her social studies curriculum. Interviews revealed student frustrations with the traditional curriculum’s neglect of controversial issues such as contemporary racial inequality and an eagerness to learn more about oppression through a relevant social studies curriculum—a curriculum that acknowledges and affirms the legacy of racism and engages students in provocative dialogue that works towards realistic solutions (Howard, 2004).

The United States history curriculum also advances male dominance. Hackman (2013) explains that the best way to oppress half the American population is to make it seem normal. Crocco (2001) further explains that “the social studies field has been largely silent in its public discourse about gender” (p. 70). In textbooks and standards, authors emphasize political and military history at the expense of social history, therefore making inclusion of gender issues difficult despite contemporary efforts to incorporate gender diversity (Engebretson, 2014). The United States history content standards perpetuate this truth. Not only are the majority of American icons in the history curriculum white, they are also male. The rise of multiculturalism resulted in only minor inclusions of women’s history in social studies curricula. Crocco’s (2011) study analyzing the familiarity of historical females and their prevalence in textbooks paints a bleak picture—when given a list of fifteen famous females, less than half of the names on the list were recognized by more than 50% of the respondents. The Great Man theory of history assumes that those who make history are exceptional human beings and since they are exceptional, they must be men (Woodburn, 2006). History texts and curricula recognize the achievements of perceived winners. Failure to expose students to women’s role in United States history in particular, reinforces male dominance.
The curriculum also supports a culture of heterosexism. For many gay and lesbian youth their sexuality creates isolation. Sears (1991) discusses at length the experiences of gay and lesbian youth struggling with family and peer relationships as they grapple with their sexual identity. Male dominance breeds homophobia as homosexuality is viewed as an abnormal form of gender expression (Carbado, 2013) and those who fail to conform to gender socialization can fall victim to both physical and verbal abuse (Crocco, 2001). Heteronormativity, the assumption that all students are heterosexual, results in school policies that structure and reinforce heterosexuality while failing to acknowledge other sexualities (Schmidt, 2010). In social studies in particular, the content standards’ neglect of these issues reinforces this perspective. Crocco (2001) argues that even though social studies traditionally ignores the social component and instead focuses on civics and economics, social studies educators are uniquely positioned to consider issues of gender and sexuality. Schmidt (2010) agrees that schools and state standards do very little to address LGBTQ issues, but social studies and its emphasis on citizenship can prepare students “to consider LGBTQ issues as part of the common good” (p. 319). Like other forms of oppression, heterosexism finds credibility cemented in tradition, legislation, and religious interpretation (Blumenfeld, 2013), and before teachers can move their students towards social justice for sexual minorities, they must first examine their own biases (Crocco, 2001; Miller & Session, 2005). The social studies were born out of a spirit of social inclusion (Crocco, 2001), and in order to foster this inclusion in 21st century classrooms, a curricular paradigm shift must occur.

The curriculum teaches the political, economic, and social histories of the dominant social group; by omitting the stories of the majority of Americans, i.e., blacks,
Native Americans, immigrants, women, the poor, etc., the curriculum devalues their contributions and perpetuates the status quo. Schools and curricula should reflect society, not merely the dominant group, and promoting diversity in the classroom serves as the foundation for a more comprehensive human experience (Miller & Sessions, 2005). Incorporation of a project-based and problem-driven pedagogy allows educators to incorporate social justice components within student-centered activities. Incorporating multiple voices and perspectives and exposing white supremacy, Christian privilege, patriarchy, heterosexism in the United States history curriculum challenges the traditional portrayal of America’s past (Segal & Gaudelli, 2007). Effective project-based instruction incorporates problem solving as a key component (Grant, 2011; Hanney & Savin-Baden, 2013), and problem-driven projects grounded in issues of social justice serve as a natural extension of the content standards.

**Critical thinking.** Creating curriculum relevancy, fostering student motivation, creating opportunities to differentiate instruction, exposing students to 21st century skills, and incorporating issues pertaining to social justice all serve as examples of the potential benefits of project-based instruction implementation. The present action research focused on project-based instruction’s impact on the development of critical thinking, an area where the implementation of this pedagogy promises improvement. When teachers intentionally design instruction that promotes critical thinking development, critical thinking skills inevitably improve. For example, Miri et al. (2007) examined the impact of direct critical thinking instruction on the improvement of critical thinking skills in a longitudinal study. Their data revealed that a sample population receiving instruction that focused on inquiry learning, open-ended class discussions, and interdisciplinary
“real-world” problems connected to the learning context showed significant improvement in critical thinking skills as compared to the control group on two critical thinking measurements (The California Critical Thinking Disposition Inventory and The California Critical Thinking Skills Test). Likewise, Tamin and Grant’s (2013) longitudinal case study collected qualitative data from six teachers embedded in a project-based instruction implementation, and through a series of interviews, the study reveals that critical thinking and creativity are key skills enhanced by working on project-based activities. Implementing a project-based curriculum allows students to “solve complex, real-world problems, [and] to find, evaluate, and use appropriate learning resources” (Savery, 2006, p.12). For the purposes of my study, I defined critical thinking within the framework of the revised Bloom’s taxonomy (Anderson & Krathwohl, 2001) and Dewey’s reflective thinking. After deconstruction of the problem into its parts through analysis, project-creation allows students to reach the two highest levels of the taxonomy: creation and evaluation (Anderson & Krathwohl, 2001; Belland, French, & Ertmer, 2009). The project’s problem-solving component promotes critical thinking as well by implementing Dewey’s reflective thinking framework (1910/1991).

**Measuring critical thinking.** In order to determine the effectiveness of project-based learning on the improvement of critical thinking skills, the teacher must first identify an appropriate assessment to measure critical thinking. Unfortunately, identifying reliable measures of critical thinking improvement proved to be as challenging as defining the construct itself (Bers, 2005; Bissell & Lemons, 2006; Ennis, 1993; Hatcher, 2011). Research literature identifies multiple-choice exams, open-ended essays, and mixed assessment approaches as the predominant measures of critical
thinking. Robert H. Ennis (1993), a leading theorist in the measurement of critical thinking and coauthor of the Ennis-Weir Critical Thinking Essay Test explains that critical thinking measurements must begin with the assessment’s intended purpose in mind in order to be effective. Possible outcomes of critical thinking measurements include

1. Determining levels of critical thinking ability;
2. Providing student feedback about critical thinking strengths and weaknesses;
3. Motivating students to improve their critical thinking skills;
4. Providing teachers with data about the effectiveness of instructional practices targeted at improving critical thinking;
5. Providing the necessary comparison data to conduct research (1993).

In order for the measurement to be reliable, the teacher must first effectively define critical thinking and then determine the appropriateness of the assessment to their students (1993).

Hatcher’s (2011) comparison study analyzes various measurements of critical thinking including popular measurements such as the Ennis-Weir Critical Thinking Essay Test (E-W), the California Critical Thinking Skills Test (CCTST), and the Cornell Level Z Critical Thinking Test (CLZ). The students in the sample each completed a pre-test and post-test. The study concluded that even though students showed greater gains on the essay test (E-W) than the multiple choice assessments (CCTST, CLZ), these gains could be due to the fact that the essay test more closely resembled what the course required students to master (2011). Courses requiring students to write, which Tsui’s
(2002) case study demonstrates to be a crucial component of critical thinking development, show larger improvement gains on an essay-based assessment. Hatcher (2011) reinforces Ennis’ (1993) claim that regardless of the assessment of choice, teachers much first define critical thinking and what skills the construct entails and then “choose a test that best assesses those skills” (p. 37). Students perform better on assessments when the assessment measures the skills the teacher defines as essential.

Multiple-choice critical thinking measurements are popular due to the time commitment often required to grade essays, evaluate portfolios, or create original authentic assessments (Hatcher, 2011). However, critical thinking assessments that incorporate a written component in conjunction with closed-end multiple-choice tests have advantages over multiple-choice only formats (Ku, 2009). While multiple-choice assessments may be more ideally suited to large samples (Hatcher, 2011), these assessments fail to account for the test-taker’s ability to construct their own learning and create their own solutions (Ku, 2009). Teachers who define critical thinking skills as requiring students to Create and Evaluate (Anderson & Krathwohl, 2001) must design assessments that ask students to accomplish these skills; a measurement that incorporates a written component allows this, while objective, multiple-choice assessments limit these opportunities. Ku (2009) explains further that a more holistic approach to measuring critical thinking has emerged. One such approach is the Halpern Critical Thinking Assessment, an assessment that includes both a multiple-choice and written component. In their study of the development of critical thinking skills in high school students in low-performing schools, one of the few of its kinds as empirical studies of critical thinking in adolescents are rare, Marin and Halpern use the Halpern Critical Thinking Assessment as
their instrument (2011). The study, conducted in two-phases, demonstrates that students exposed to both content-embedded and explicit instruction in critical thinking skills show improvement as measured by the instrument. The results also prove “that helping students learn critical thinking skills can be done without a comprehensive restructuring of the high school curriculum” (Marin & Halpern, 2011, p. 11). Additionally, the Halpern Critical Thinking Assessment proves reliable not only in this study, but the instrument provides a holistic assessment of critical thinking by measuring student response beyond simply identifying the correct answer (Ku, 2009).

Open ended-critical thinking measures allow students to synthesize content, create their own responses, and demonstrate the process used to construct the response. When incorporating an open-ended critical thinking measure such as an essay, teachers can use assessments that follow various formats. A highly-structured format such as the Ennis-Weir Critical Thinking Test limits the scope of student responses and requires students to appraise critical thinking in an assigned passage. A medium-structured format, such as College Board AP exams, requires students to create an argumentative response based off a predetermined passage, and a minimally-structured response requires students to create an original response based off any number of issues (Ennis, 1993). Fliegel and Holland’s (2013) longitudinal study of critical thinking development employed the open-ended essay format by using faculty-generated essays and rubrics as the critical thinking instrument. The rubric assessed the prevalence of critical thinking abilities rather than writing ability and allowed the scorer to assess originality of thought (2013). The holistic essay and rubric allow students to demonstrate their ability to create
something, a critical thinking skill defined by the revised taxonomy (Anderson & Krathwhol, 2001).

An additional concern in the selection of critical thinking assessments unrelated to specific classroom instruction stems from students not producing their best work (Fliegel & Holland, 2013; Renaud & Murray, 2008). Renaud and Murray’s (2008) comparison study of non-contextual generalized critical thinking assessments and subject-specific critical thinking assessments embedded within the context of class material reveals that students produced greater gains on the subject-specific assessment. Possible reasons for this disparity include exposure to content, the short length of the intervention (90 minutes), and student effort on the exam (2008). Students with an incentive to do well, such as a grade, will put forth greater effort on the assessment. When citing Halpern’s perspective on critical thinking assessments (2001), the authors acknowledge that ideally, critical thinking skills are transferrable beyond the classroom, and when studied over a longer duration, such as years, an assessment with more generalized questions may be more appropriate. Nonetheless, the results of the study build upon Hatcher’s (2011) claim that critical thinking assessments that measure the skills taught by the teacher produce the most significant gains in critical thinking improvement. Assessments embedded within actual course content, particularly when the length of the study is shorter, increase the likelihood of this outcome and actually teach the skills that teachers believe their students need to learn (Fliegel & Holland, 2013).

The present action research study focused on the impact of project-based instruction implementation on critical thinking skills improvement. In order to assess this improvement, the study defined the critical thinking construct to encompass the
development of the higher order thinking skills of the revised Bloom’s taxonomy—
*analyzing, evaluating, and creating* (Anderson & Krathwohl, 2001). Implementation of a
pedagogy grounded in the progressive instructional practice of project-based instruction
potentially improves students’ critical thinking. To measure critical thinking
improvement, the study employed an open-ended, medium-structured essay based upon
the document-based question found on the College Board’s Advanced Placement United
States History Exam and grounded in the content of the course (Ennis, 1993). The
holistic rubric evaluated how well students demonstrated their critical thinking abilities
(Fliegel & Holland, 2013) in both the pre-test and post-test for both the control and
treatment groups.

**Challenges to implementation.** Significant obstacles impede effective
implementation of project-based instruction. Perhaps the most daunting challenge facing
educators who want to incorporate project-based instruction into the curriculum is the
radical shift in pedagogy implementation creates. Teachers accustomed to the traditional,
teacher-centered, and content-driven classroom struggle with the ambiguity and
flexibility of the student-centered environment, maintaining a balance between innovative
projects and the high-stakes tests preparation, keeping students engaged, and project-
based instruction assessment (Ertmer & Simons, 2006; Tamin & Grant, 2013). Most
teachers who implement project-based instruction find themselves in the minority in their
department or school as adoption of this instructional approach lacks commitment at all
levels (Savery, 2006).

Social studies educators advocate that history instruction should move beyond
rote memorization (Brush & Saye, 2014), yet accountability assessments often discourage
this. United States History teachers in my state, for example, must prepare their students for the End-of-Course Exam, a test that counts 20% of the final semester grade, one that students often struggle to pass on an annual basis. This exam assesses rote memorization of content and research confirms that traditional teacher-centered and content-driven instruction leads to higher achievement on assessments that test lower forms of cognition (Savery, 2006). As such, teachers in tested subjects hesitate to implement project-based instruction despite its documented benefits.

The widespread lack of commitment to project-based instruction implementation at the school and district level leaves pioneering teachers without the necessary skills to effectively manage this instructional shift and assess student learning (Brush & Saye, 2014). Research supports that project implementation increases student engagement; yet, teachers need to incorporate checkpoints throughout the process to insure students remain focused on the task (Savery, 2006; Tamin & Grant, 2013).

Assessments of projects must focus on the goals of project-based instruction and a key challenge to effective project implementation is defining appropriate assessments in an age of increased accountability (Savery, 2006). Students who create artifacts representative of their learning need feedback that is both authentic and constructive, and “[m]ultiple-choice and true-false tests may be inappropriate to judge the quality of learning that has occurred” (Grant, 2002). To prepare students for the multiple-choice, closed-end assessments that accompany the standards, teachers use similar tests to assess student learning and are often unfamiliar with the rubric and portfolio approach that best fits assessing projects. Portfolios allow for a diversity of assessments and demonstrate progress over an extended period, and rubrics create greater objectivity and reliability
across learners (2002). Teachers who implement project-based instruction into their classes must move their assessment strategies beyond the typical multiple-choice model to a more authentic student-centered approach.

**Instructional Framework**

**Project-based instruction implementation.** Successful implementation of project-based learning in the classroom necessitates the inclusion of an instructional framework, and the absence of a guiding framework presents a significant challenge to implementation. Clark (2006) explains that the project approach falls beyond the parameters of traditional instruction, and outside of the three key elements of investigation, representation, and culmination, there are no other specific guidelines and the instructor must develop the activity’s specific elements. Successful implementation also requires teachers to “embrace co-creating and participating in the learning process with children” (Mitchell, Foulger, Wetzel, & Rathkey, p. 345, 2009). However, Grant (2002) operationalizes the implementation process in the classroom through seven specific steps. This framework provided the necessary guidance for project intervention in this study’s treatment group.

1. During the first step, or *introduction*, the instructor sets the stage for activity and grounds the project in the context of appropriate course content.

2. During the second step, or *task* phase, the instructor introduces students to the guiding question or problem that anchors the activity.

3. The third step, *resources*, includes all elements the student uses during the process including technology materials and other sources.
4. In the fourth step, process, the students and instructor engage in the necessary steps to answer the guiding question. The processes the instructor designs should focus on critical thinking.

5. Throughout the activity, the instructor provides expert guidance and scaffolding as novice students grapple with the assignment’s requirements. As the instructor coaches the students through the activity, the students become proficient and acquire new skills.

6. Students learn through peer interaction during the cooperation/collaboration phase of the activity. This element can occur at any stage during the activity and may include such activities as brainstorming or peer reviews.

7. The final step, the reflection phase, allows for an opportunity for debriefing. This element may include whole class discussions as well as the discovery of new questions and directions for future research that emerge during the activity.

This framework provided the context for the project-based intervention for this action research study.

**Performance-based assessment.** Project-based instruction requires alternative assessment methods. Selected-response assessments prevent an evaluation of the procedural knowledge unique to each student as they use their “repertoire of knowledge and skills to create a product or response” that reflects their own experiences (Adair-Hauck, Glisan, Koda, Swender, & Sandrock, 2006). Performance-based assessment provides students the opportunity to demonstrate and apply their knowledge through the
creation of tangible products or observable performances (Marzano, Pickering, & McTighe, 1993). Performance-based assessment closely aligns to project-based instruction through the inclusion of a product assessment, simulation of real-world problem solving, encouragement of student reflection, and assessment of higher level thinking skills (Perlman, 2003; Green & Johnson, 2010; van Tressel-Baska, 2013). Performance-based assessments accompanied the project-based and problem-driven interventions completed by the study’s treatment group.

Continuous, clear, and appropriate feedback provides the student with a description of what they have accomplished and what steps are needed for improvement (Adair-Hauck & Troyan, 2013). The selected response questions that comprise most standardized tests provide limited feedback regarding student performance in the form of a percentage. Marzano, Pickering, & McTighe (1993) explain that these tests are best suited for efficiency and assessing declarative content such as historical facts. When instruction targets critical thinking development and requires the creation of unique products a more appropriate scoring model is needed. The complexity of performance based assessments and the presence of multiple criteria that accompany project-based instruction make analytic rubrics the most appropriate assessment choice. The rubric presents a continuum of proficiency levels, each distinguishable from the others, with clear descriptors that concisely describe the targeted response for each level (Green & Johnson, 2010).

Various forms of performance-based assessments exist, and the present action research study assessed intervention projects through a modified version of the Integrated Performance Assessment (IPA) prototype developed for use in foreign language courses.
The Integrated Performance Assessment consists of three components, the interpretative communication phase, the interpersonal communication phase, and the presentational communication phase (Adair-Hauck, Glisan, Koda, Swender, & Sandrock, 2006). While research has not measured the effectiveness of the model in the social studies classroom, each of the three components corresponds well with the study’s project design. Since the model was designed to assess language development and communication, modified phases of the Integrated Performance Assessment design better reflected the study’s instructional design (see Appendix F). Effective project-based instruction uses content as the vehicle to make connections to real-world problems and potential solutions. The various primary and secondary sources that supplement the content standards and instruction served as the foundation for the interpretative phase. In the second phase, the interpersonal phase, students collaborated with the instructor and their peers to connect the content to social justice issues and possible solutions. The treatment group’s project-based intervention incorporated a technology component, and in the final phase, the presentational phase, the students published their digital artifacts to the web.

Constructivist learning theory grounds the Integrated Performance Assessment. Like project-based instruction, the assessment design immerses students in meaning-making and self-reflection and guides them towards becoming autonomous learners (Adair-Hauck & Troyhan, F.J., 2013).

The measure the study utilized to assess critical thinking in both the treatment and control groups, an open-ended document-based question modeled after the College Board Advanced Placement design falls within the Performance-Based Assessment paradigm (van Tressel-Baska, 2013). The Document-Based Question (DBQ) prompt required
students to synthesize information from multiple texts to create an analytical essay that answers the prompt (College Board Advanced Placement Program, 2010a, 2010c). The Document-Based Question (DBQ) scoring guide employs an analytic rubric with proficiency levels embedded with four performance criteria (College Board Advanced Placement Program, 2010b, 2010d).

**Theoretical Framework**

The theoretical framework supporting the present action research study is grounded in the progressive and social reconstructionist discourses of curriculum design, the project-method and inquiry learning, the psychological theory of constructivism, instructional theories of situated learning, communities of practice, the cognitive apprenticeship, and the critical thinking model of the revised Bloom’s taxonomy. An initial discussion of the theories that support accountability and current curriculum design provide the context with which to portray the contrasting framework that supports my study.

**Essentialism.** Essentialist curriculum theories and behaviorism provide the theoretical framework of the standards and accountability movement. Delivering an address at the height of the Great Depression essentialist pioneer William Bagley (1938) criticizes the progressive approach, including the project method, and argues instead that education reform should focus on guidance, discipline, and the instruction of fundamentals in order to prevent chaos and preserve American ideals. While not totally discounting process, Bagley argues further that knowledge exists beyond the learner, and he emphasizes that academic content must remain a central feature of the curriculum. Tyler (1949) explains that when determining the educational objectives that define
education’s purposes, the essentialist selects from the many years of accumulated knowledge or the cultural heritage. This heritage exists in the contemporary curriculum in the form of content standards where the teachers “make[s] deposits of information which he or she considers to constitute true knowledge” (Freire, 1970/1995, p. 57).

Null (2007) argues that the accountability and testing movement is an extreme interpretation of Bagley’s Essentialism. However, Imig and Imig (2006) and Sage, Adcock, and Dixon, (2012) argue that in the history of education policy, neo-essentialism provides the framework for the standards-based curriculum. Modern essentialist and former United States Secretary of Education William Bennett (1987) espouses the back-to-basics point-of-view perfectly when he asserts the reform answer is “more testing, lots of homework, longer hours, tougher discipline…[t]each the basics—reading, mathematics, writing” (p. 139). In the 21st century, education critics offer the same critique, as evidenced through bipartisan education policy stressing content-driven curricula and testing. Even in states whose policies promote student-centered instruction, teachers hesitate to abandon the essentialist model due to the pressures of high-stakes testing (Berliner, 2011; Roberson and Woody, 2012; Voger). The essentialist platform creates the testing-obsessed culture that forces teachers to abandon instruction that promotes critical thinking in favor of rote memorization.

**Behaviorism.** Tyler (1949) explains the need to examine the learner individually when determining the appropriateness of educational objectives, and the behaviors they seek to develop. Anderson and Krathwohl (2001) explain that Tyler’s use of the phrase “behavior” forever links his educational objectives to the psychological theory of behaviorism. The behaviorist views of educational psychologists such as B.F. Skinner
(Swaim, 1972) categorize learning through the lens of observation, which integrates well with the Essentialist approach. Teachers provide the stimuli; student learning becomes observable and measurable. Since 1960, educational psychologists and school districts have exhibited an almost religious dedication to behaviorism—this simplistic approach proves limited in scope in the complex environment of the classroom (Jones, 2002). How do stakeholders—policymakers, schools, and school districts—measure student achievement? Lesson plans exhibit observable expectations and objective, multiple-choice tests quantify student learning. Student learning becomes a number that serves as accountability’s foundation. The stimulus-response model creates a curriculum that neglects students’ prior experiences and promotes instruction that targets the lowest levels of cognition, levels often easily measured. Even the state standards are written in the subject and verb format (Anderson, 2005), with the objective being that which the measurement can assess and quantify.

**Progressivism.** The essentialists fail to “see American life and its problems on the one hand and the growing child and his needs on the other as important units to be integrated” (Rugg & Schumaker, 1928/1969, p. 30). The progressive discourse stands in stark contrast to the standards, assessments, and accountability of the essentialist model; it is out of this ideology that the project method emerges. Progressive educators trace their roots to the educational philosophy of John Dewey and his colleagues. All genuine education arises out of experience (Dewey, 1938/1997) and given the individual nature of experience, effective pedagogy targets individual interests and experiences. Curriculum is student-centered and aims to provide the necessary experiences to connect the child to the community and prepare them to participate in democratic society (Dewey,
The social studies discipline in general and United States history in particular provide rich opportunities for students to connect to the larger community. Allowing students to study history as humanity’s interwoven story thereby discovering their place in it brings history out of the distant past and provides context and meaning (Dewey, 1897/2013). Like Bagley, progressive and the social reconstructionist educators espoused their theories during one of most difficult eras in American history, the Great Depression. In contrast to Bagley, these theorists claim that education holds the potential to solve social problems whereby an educated and socially connected populace strengthens democratic institutions.

Progressivism promotes self-learning through student inquiry. Dewey’s *How We Think* (1910/1991) discusses the importance of reflective thought in the educational process and claims that through active investigations learners find solutions to complex problems. Reflection requires thinking about thinking, and moves cognition far beyond the lowest forms the behaviorist, essentialist classroom typically targets. Reflection requires investigation; the student must actively pursue truth. Teachers present their classes with problems and guide their students towards hypothesis development and problem-solving (Sutenin, 2013). Dewey’s problem-solving method inspires growth in the learner; growth occurs when the learner discovers the solution to the problem at hand (Barrow, 2006; Sutenin, 2013). In order for true reflective thinking to occur, the learner must engage in five distinct logical steps:

1. The student identifies the difficulty, or the problem;

2. The student defines the problem;
3. Based upon their own thinking and experiences, the student develops possible solutions to the problem;

4. The student develops a hypothesis and creates a plan of inquiry to solve the problem; and


Dewey’s reflective process engages the student in a purposeful act and allows the student to discover their own learning by testing the hypothesis they create out of their own experiences. Problem-based projects create similar reflective learning opportunities. Dewey hoped education experiences would allow students to move beyond rote memorization to the point where subject matter and method were interwoven (McCaughan, 2013). Dewey’s reflective thinking framework guided the development of the problem-solving component of the present study’s project-based intervention. The progressive framework also shaped the present study’s methodology as action research finds its roots in the Progressive curriculum discourse through John Dewey’s experimentalism (Helskog, 2014).

**Social Reconstructionism.** Progressive theorists define the purpose of schooling as the spread of democratic ideals and the creation of opportunities for discovery learning through student-centered and multidisciplinary instruction. Social reconstructionist theorists built upon the progressive model and viewed education’s purpose as the remaking of society with school and educators serving as the vehicles of revolution. Leading social reconstructionist George Counts (1932/2013) explains this perspective in that teachers “must bridge the gap between school and society and play some part in the
fashioning of these great common purposes which should bind the two together” (p. 46).

With schooling as the context, teachers facilitate the reconstruction of the social order. Schools function as laboratories that give students the freedom to study social problems and become agents of change. Freire (1970/1995) explains that the essentialist curriculum stifles creativity, while problem-posing education involves the constant portrayal and critical intervention in reality.

Project-based instruction fits firmly within the progressive and social reconstructionist discourses. Project-based instruction facilitates student-centered learning opportunities that connect students to society and a problem-solving paradigm that drives learners to become agents of change. Students discover their learning is valuable when they can make connections to real-life problems that require adult skills (Solomon, 2003). The creation of projects spawns creativity as students develop authentic products and take full ownership of their learning. Project-based instruction puts pupils in the center of the learning process and recognizes the diverse experiences and backgrounds students bring into the classroom (Doppelt, 2003).

**Constructivism.** Contemporary educational progressives further ground their ideology in the constructivist psychological theories of Jean Piaget (1964/2003) and Lev Vygotsky (1978). Pecore (2013) explains that problem-based instruction is “firmly grounded in constructivism where students become willing and active participants in the learning process” (p. 24). Problem and project-based learning employs constructivist principles. Often referred to as the founder of constructivism, Piaget (1964/2003) criticizes the inability of the stimulus-response model to explain cognition. Further, he claims cognitive development occurs in stages, each linked and influenced by experience.
Piaget’s constructivism claims learning builds on prior experience, and the job of the teacher is to create cognitive conflict in the students’ minds that challenges pre-conceived assumptions (Bachtold, 2013). Students must reflect on their own learning. Vygotsky (1978) further explains that learning occurs within the zone of proximal development, the larger environment where students build upon prior learning and reach complex levels of development through cooperative interaction. As students collaborate and construct new knowledge, their skills repertoire increases. Behaviorist classrooms feature teacher-created stimuli and passive student responses. Constructivist classrooms feature student-centered opportunities where teachers guide “the learner to actively engage in meaning-making” (Ultanir, 2012, p. 196).

**Situated learning.** Discussions of learning in authentic contexts begin with constructivist learning theorists who posit that reality is the product of the construction of meaning resulting from the interaction of personal experience and their environment (Ertmer & Newby, 1993). Situated cognition learning theorists expand on constructivism and claim that knowledge acquisition occurs in situated physical and cultural contexts familiar to the learner (Driscoll, 2005; Szymanski & Morrell, 2009). Vygotsky’s sociocultural theory further strengthens this claim (Driscoll, 2005). Vygotsky rejected the behaviorist claim that individual experience detaches from the social environment and instead argued that the learner “develops his own interpretative meaning of act while communicating with others” (Jaramillo, p.136, 1996). Learning contexts must be meaningful and authentic to the student. Classroom activities that focus instead on tasks that exist only within the culture of school result in knowledge that is both inert and unable to be applied in cultural contexts (Brown, Collins, & Duguid, 1989; Driscoll,
Immersing students into authentic learning contexts creates relevant knowledge that connects them to cultures beyond the classroom. Vygotsky (1978) explains that learning occurs within the Zone of Proximal Development, the larger environment where students build upon prior learning and reach complex levels of development through cooperative interaction. The maturation and development of the Zone of Proximal Development’s learning functions depends upon this interaction and even though learning occurs individually through intra-psychological processes, the learning occurs as result of the knowledge creation that occurs through collaboration with the community (Churcher, Downs, & Tewksbury, 2014). By recreating the context of the social community in the classroom, teachers can foster this collaboration.

**Communities of practice.** Communities of practice provide the situated learning contexts to create collaborative opportunities. Communities of practice simulate authentic community contexts that exist in the world and consist of individuals informally linked by a shared expertise and a desire for joint enterprise (Hung & Chen, 2001; Wenger, 1998; Wenger & Snyder, 2000). The classroom community becomes a microcosm of the social community in which learners live. Levinson and Brantmeier’s (2006) analysis of the use of communities of practice to create a learning context fostering civic education indicates communities of practice advance the democratic participation that Dewey (1916/1997) and other progressives championed a century ago. Membership in a community of practice leads to a degree of ownership among students through a sense of communal accountability and individual investment (Collins, Brown, & Holum, 1991). Students live in communities outside of the classroom so establishing a community environment inside the classroom increases the likelihood of social
interaction and the knowledge acquisition that follows. Vygotsky further asserts that learners use the tool of language to construct knowledge inside the social context (Churcher, Downs, & Tewksbury, 2014; Jaramillo, 1996). Within the cooperative learning environment communities of practice create, students use language to communicate and construct reality.

**Cognitive apprenticeship.** Just as added skills and knowledge increase involvement in communities of practice beyond the classroom, learners become more involved in the community of practice inside the classroom by gaining more expertise. Driscoll (2005) explains that learners enter the community as newcomers and are only allowed to become full participants by gaining the repertoire of skills from more experienced members. Within authentic learning communities, full participants transfer these skills through apprenticeships, and in the classroom, cognitive apprenticeships accomplish the same goal by creating authentic activities and opportunities to share culture (Driscoll). The cognitive apprenticeship builds upon the concepts of the traditional apprenticeship within the context of schooling (Collins, Brown, & Holum, 1991). Cognitive apprenticeships form the basis of the community of practice since the goal of the community’s experts is to add to their number by developing those on the periphery into full participants (Bouta & Paraskeva, 2013). Cognitive apprenticeships allow students to enter the world of mathematicians, writers, scientists, and historians. While classroom learners may not experience an apprenticeship in the same manner as a medical resident, instructors can create learning contexts “through projects in which the instructor models desired skills and coaches learners as they follow suit” (Driscoll, 2005, p. 175). Project-based instruction serves as an essential component of the cognitive
apprenticeship framework. Collins, Brown, and Holum (1991) provide a systematic
approach for implementation of the cognitive apprenticeship in the classroom.

1. In the initial step, modeling, the teacher models the desired task so that
students can build a cognitive model of the processes required to accomplish
the task.

2. The next step, coaching, involves guiding learners as they begin the task by
offering hints and additional strategies to guide the learners as they move
closer to expert performance.

3. Scaffolding occurs during the third step. During this step the teacher
continues to provide learner support and may need to perform tasks that the
students cannot yet accomplish.

4. The fourth step requires learners to articulate their reasoning and problem-
solving processes.

5. When learners reflect on their learning, they compare their problem-solving
processes with the cognitive experts, other students, and their own initial
conceptual model they created in the first step.

6. During the exploration phase, students generate their own solutions to
problems within their problem-solving cognitive model, and through research
discover their own problems for future activities.

This methodology blends well with project-based instruction implementation in the
classroom and informs the intervention in the present action research study.

**Critical Thinking.** Due to the absence of an operational definition, researchers
use diverse concepts to define the construct of critical thinking (Bensley & Spero, 2014;
Bers, 2005; Bissell & Lemons, 2006; Petress, 2004). Despite this differentiation, literature identifies key components of the critical thinking process. These skills include analysis, synthesis, and evaluation as imperative steps in the sequential development of critical thinking (Bers, 2005; Bissell & Lemons, 2006; Miri et al., 2007; Piergiovanni, 2014). For the purposes of the present action research study, I employed the revised version of Bloom’s taxonomy created by Anderson and Krathwohl (2001) and Dewey’s (1910/1991) definition of reflective thinking as my theoretical framework. The original taxonomy freely acknowledged the importance of critical thinking (Bloom, 1956/1994) as the ultimate goal of the teacher, not just the acquisition of knowledge. The three highest levels of analysis, synthesis, and evaluation provide the blueprint for problem solving; a skill Bloom and his colleagues viewed as increasingly valuable in the age of rapidly accumulating knowledge. Research clearly indicates that as “higher mental processes are taught, lower level skills can be learned concomitantly” (Bloom, 1956/1994, p. 8). In their revision of the original taxonomy Anderson and Krathwohl (2001) argue the same point—focusing on how higher cognitive skills increase the transfer and retention of knowledge. Unfortunately, in the high-stakes testing environment of the accountability era, the final assessment drives the instruction and determines the objectives, making content and the understanding of content the focal points of instruction (Airasian, 1994). Instruction targets the taxonomy’s lowest levels of cognition.

Anderson & Krathwohl (2001) revised the original taxonomy to serve as a guide for educators as they navigate accountability standards and mandates. Like the original taxonomy, each step in the process increases in cognitive complexity, but “problem
solving plays a much larger role in the revised version” (Anderson, 1999, p. 10). The final stages, *Evaluating* and *Creating*, emphasize student-centered, reflective, and active learning that fits well within the scope of project-based instruction. Creating conflict and challenging students to look past their own pre-conceived reality to solve problems relates clearly to Dewey’s (1910/1991) definition of true reflection.

The behaviorist approach employed to meet the needs of accountability targets the lowest levels of the revised taxonomy, *Remembering* and *Understanding*, and the End-of-Course Test reflects how well students accomplish these tasks (Anderson, 2005). Project-based instruction moves students beyond rote memorization and recall to the highest levels of the revised taxonomy pyramid (Anderson, 1999). Learning higher-level cognitive skills within this framework increases students’ capability to apply their learning or to real-world contexts (Thomas, 2000). Solomon (2003) explains that through teacher guidance, students “gather evidence from a variety of sources and synthesize, analyze, derive knowledge from it” (p. 20). Through projects, students create unique products, internalize their learning, and connect it to prior experiences. In traditional classrooms that focus on “low-level facts and skills…students are afforded few opportunities to represent knowledge in a variety of ways” (Blumenfeld et al., 1991). Standardized tests and other objective activities isolate knowledge and assess it outside the learning process—they focus on the product rather than the process. Rarely do these assessments provide opportunities for students to apply their knowledge in the future; rather they serve as a disruption of the learning process as students abandon learning to cram for the assessments (McDonald, 2008).
Creating unique products stimulates deep levels of authenticity and relevance (Grant, 2011). Students make value judgments and to accomplish this must continuously self-assess and reflect upon their progress. Evaluation internalizes learning and requires students to assess their thinking. Progressives and social reconstructionist educators view schooling as the medium to equip students with the critical thinking skills necessary to solve problems the complex, industrial society creates and influence the thinking of coming generations (Counts, 1959/2013; Rugg & Schumaker, 1928/1969). Incorporating project-based instruction in a United States history classroom targets the higher levels of cognition as defined by the revised Bloom’s taxonomy (Anderson and Krathwohl, 2001; Savery, 2006) and allows students to engage in problem-solving and reflective learning (Dewey, 1910/1991).

**Conclusion**

The age of accountability and high-stakes testing in the US since the publication of *A Nation at Risk* (ANAR) (1983) has created an essentialist curriculum that hinders instruction of critical thinking in secondary education in general and in US history courses in particularly in my state of South Carolina. Teachers sacrifice these skills in the name of teaching to a test that stresses the recall of randomly chosen content. Implementation of project-based instruction in a US history classroom promises to improve critical thinking skills. The purpose of the present action research study is to investigate the effects of project-based learning implementation in a US history classroom.

This review of literature frames the present action research study in the contextual framework of the project-method, the instructional framework of Grant (2002) and the
Integrated Performance Assessment model (Adair-Hauck et al., 2006). Progressive and Social Reconstructionist discourses of curriculum design, the psychological theory of Constructivism, the instructional theories of situated learning, communities of practice, and the cognitive apprenticeship, as well as the critical thinking framework of the revised Bloom’s taxonomy and Dewey’s reflective thought comprise the study’s theoretical framework. Combined, these theories and concepts supported the action research cycle (Mertler, 2014).
CHAPTER THREE

METHODODOLOGY

Introduction

This chapter will outline in detail the research methodology that the present action research study employed to answer the research question and it will focus on the second phase of the action research process, *acting*, which involves the collection and analysis of data (Mertler, 2014). Action research is participatory (Mertler, 2014; Dana & Yendel-Hoppy, 2014; Herr & Anderson, 2005) as opposed to traditional research where the researcher removes themselves from the research environment. The action researchers immerses themselves in the process and transforms the classroom into a laboratory of pedagogical experimentation. Herr and Anderson (2005) identify the various traditions of action research including the organizational development, action science, participatory evaluation, teacher-as-researcher, self-study, and practitioner research movements.

This study is grounded in the practitioner-researcher action research tradition and focuses on applicable research. This tradition is unique to North America and arose out of a rejection of the quantitative only approach to research and the deskilling of teachers in the age of accountability (Herr & Anderson, 2005). The present action research study seeks to determine if the implementation of a project-based learning treatment benefits students within a specific context (classroom), and if the action research methodology provides the most appropriate framework to determine the answer to this research question.
**Problem of practice.** The identified problem of practice for my Dissertation in Practice (DiP) stems from the lack of critical thinking skills in social studies that an essentialist curriculum and teach-to-the-test instructional strategy at a suburban high school in South Carolina has fostered since the arrival of the accountability movement in United States public schooling. In response to the increased pressures of testing and accountability, teachers adjust their pedagogy by narrowing the social studies curriculum and focusing on fact-based content at the expense of higher order thinking skills (Virtue, Buchanan, & Vogler, 2012; Vogler, 2006; Vogler & Virtue, 2007). In order to meet federal and state mandates, the administration at the research site adopted a top-down, state-mandated social studies assessment. As Au (2009, 2011) explains, this assessment requires high school students to master factual information that holds little connection to their own personal experiences and forces faculty to focus on protecting professional reputations. Segall (2006) poignantly compares the challenges of the accountability movement “as the laying of a minefield in front of educators at all levels, who, once in it, could do little more than to find a way to get out of it safely or be blown away” (p. 106). These realities informed the identified PoP for the present study that includes an investigation of the tensions created by efforts to teach critical thinking in the social studies classroom within an accountability-driven environment.

**Study rationale.** Teaching critical thinking has profound importance in public education. Critical thinking development provides students with the skills they need to make decisions in a rapidly changing world, discover solutions to social justice problems, and develop into lifelong learners (Ku, 2009; Renaud & Murray, 2008; Tsui, 2002;). Teaching critical thinking skills in the social studies classroom prepares students
to become independent thinkers and voters who become engaged in the political and social issues of a democratic society (Westheimer & Kahne, 2004; Levine, 2010). Unfortunately, standards and the high-stakes tests that accompany them interfere with critical thinking instruction (Tanner, 2013). An essentialist curriculum founded in basic facts exacerbates the problem.

**Purpose statement and research question.** Implementing a progressive pedagogy such as project-based and problem-driven instruction at this school, however, provides an alternative approach to fostering critical thinking development in the social studies classroom in general and the United States history classroom in particular. It provides the skill development students need to become active participants in a democratic society (Dewey, 1916/1997). The purpose of my action research study is to examine the potential benefits of project-based learning. To do so, I ask the following research question: How does the implementation of project-based learning impact critical thinking in a United States history classroom?

**Role of the Researcher**

In the practitioner research tradition, the teacher serves as both the researcher and a key component of the study. A key difference between traditional and action research is the role of the researcher, or researcher positionality. Traditional research views researcher involvement in the study as a threat to validity while action research demands it. Herr & Anderson (2005) define researcher positionality by identifying the researcher as either an insider or an outsider. In the present action research study, I positioned myself as an insider studying and reflecting upon my own practice. I served as instructor for the study’s student populations and designed all instructional strategies for both the
control and treatment groups. My insider role fostered my own professional
development, and a key challenge to my insider role was the observation of the taken-for-
granted qualities of my classroom from an outsider’s perspective (Herr & Anderson,
2005).

**Action Research Validity**

A consistent criticism of action research stems from its perceived lack of rigor
and validity. Because action research lives in the swamp of practical problems and not
on the high ground of theory and academia, researchers often struggle to define the
validity of action research studies when analyzed through the lens of traditional methods
(Schon, 1992). Action research does not share the goals of scientific, mainstream
research. Action research seeks to produce knowledge that benefits a specific context,
not knowledge necessarily generalizable to other populations. Action research seeks both
understanding and improvement and since it has other goals beyond confirmation and
replication, it must justify its validity by other means (Helskog, 2014). Diversity in the
action research tradition results in diverse definitions, however. Despite the various
traditions of action research, Herr and Anderson (2005) claim these traditions inclusively
seek the goals of new knowledge, action-oriented outcomes, enhanced education of
researcher (instructor), and participants (students), results appropriate to the context of
the research (classroom), and a sound research methodology. Mertler (2014) argues
further that since classroom-based research does not focus on generalizable results,
practitioners should focus on a methodology grounded in construct validity and
instrumentation reliability. Does the data collected accurately measure the construct the
study seeks to analyze? Just because action-research does not follow the parameters of
traditional research and does not strive to accomplish the same goals, does not mean action-research lacks validity.

**Research Context**

My current school, a high school in Upstate South Carolina, served as the context of my action research study. My role in my school is that of social studies department member and classroom teacher. Over the course of my career, I have taught in several school districts. I have taught a variety of courses including American Government, Economics, Western Civilization, World Geography, and Advanced Placement European History. My school operates on the 4x4 block schedule, and I teach three classes daily. While my teaching assignment varies, it includes United States History and Advanced Placement Human Geography on an annual basis. The majority of students in the study’s populations were juniors in high school, all taking United States history for the first time. These students were a part of the school’s honors track. South Carolina requires all students receiving a high school diploma to complete United States history with a passing grade.

My district is a suburban district in South Carolina and is the largest of seven school districts in my county with a student enrollment of more than 11,000. My district contains nine elementary schools, three middle schools, a freshman campus, and one high school. Demographically, my district’s diverse student population consists of 31% African-American, 46% Caucasian, 14% Hispanic, 3% Asian, and 6% Other (Superintendent’s Report, n.d.). Of the district’s 11,187 students, 60.6% of the students receive free or reduced lunch, and 16.6% are English language learners. My district has a poverty index of 72.04%, with a majority of schools receiving Title I funding. The
district’s overall graduation rate is 85.7%, but 94.5% of students who enter the district’s schools in the 9th grade and remain in the district graduate in four years (Superintendent’s Report, n.d.). The district prides itself on promoting a culture of college and career readiness, and the recent construction of a college and career center offering more than sixty hours of dual enrollment credits reflects this initiative.

My school is the only high school in my district. Students classified as freshmen attend a separate campus. I teach at the main campus, which contains 2392 students in grades 10-12. My school’s student population consists of 50% White, 31% African-American, 10% Hispanic, 4% Asian, and 5% Other. Approximately half of the student population, 47.6% receives free or reduced lunch. Approximately 11% of students receive special education services. There are 132 teachers, eight counselors, ten administrators, two nurses, two media specialists, 16 paraprofessionals, and two resource officers serving as faculty and staff. In addition to the main campus, students may take courses at the Applied Technology Center. My school offers remedial courses in math, reading, and writing as well as Advanced Placement courses in English, art, calculus, statistics, American history, European history, biology, chemistry, physics, Spanish, and Human Geography. Foreign language courses are available in French, German, and Spanish. In partnership with local universities, my school also offers dual enrollment courses giving students the opportunity to earn transferable college credits while still completing their high school course requirements.

**Design of the Study**

Action researchers employ various models when designing their studies. Mertler (2014) identifies four phases in the action research process—the planning, acting,
developing, and reflecting stages, and it is within this model of the action research paradigm that I designed my study to answer my research question.

**Planning.** Mertler (2014) identifies the first step in the action research cycle as the planning phase, and the first step in planning for my action research study required identifying a problem of practice, subsequent research focus, and the study’s research question. During this initial phase, I gathered information through collaboration with my colleagues in the social studies department and throughout the faculty; I conducted a review of related literature to create the research focus and research question. The second step in the planning phase involved the development of the research plan.

**Evolution of the research focus.** Discussions with United States history teachers within the social studies department and personal experiences with standards and accountability led to the identification of my problem of practice. Standards and accountability erode the curriculum and force instruction to target the lowest levels of cognition in order to expedite learning and prepare for standardized assessments. Most of my colleagues avoided authentic activities such as projects due to the time constraints of the United States history curriculum. A review of related literature (Chapter 2) identified the nature of project-based learning and allowed for the exploration of the potential benefits in a United States history classroom. Research revealed clear benefits of project-based learning such as curriculum relevance and student motivation (Harada, Kirio, and Yamamoto, 2008; Solomon, 2003; Larmer & Mergendoller, 2010; Blumenfeld et al, 1991; Larmer, 2014), and opportunities to differentiate instruction and target multiple intelligences (Doppelt, 2003; Painter, 2009; Anderson, 1999; Hunaiti et al, 2010). Research also revealed connections to 21st century skills (Hill, 2014; Larmer &
Mergendollar, 2010; Solomon, 2003; Savery, 2006) and a relationship between project-based learning and improved critical thinking skills (Blumenfeld et al, 1991; McDonald, 2008; Solomon, 2003; Anderson 1999, 2005; Thomas, 2000). While project-based learning instruction benefits students in many ways, implementing project-based learning to compensate for the accountability movement’s narrowing of the curriculum promises to improve my students’ critical thinking skills. The discovery of this connection led to my research question, how does the implementation of project-based learning impact critical thinking skills in a United States History classroom?

*Development of the research plan.* The second step of the *planning* phase in the action research cycle involved developing the research plan. Specifically, what guided the study design and what type of data collection best answered the following research question: how does the implementation of project-based learning impact critical thinking skills in a United States History classroom? Method of instruction served as the independent variable for the research question with impact on critical thinking as the dependent variable. Quantitative data collected via a pre-test and post-test within a control and treatment group proved to be the most effective data collection method. The control group created a comparison sample, limited the impact of extraneous variables, and attempted to determine if project-based learning affected an improvement in critical thinking skills. The control group received traditional instruction defined as lecture, note-taking, primary and secondary source reading assignments, and summative assessments for a mastery of content. The treatment group received project-based learning instruction. The project-based learning curriculum consisted of problem-based projects using historical content as a vehicle to solve real-world issues of social justice.
Students in the intervention group enjoyed the freedom to select various elements within the project to accommodate various intelligences and allow them the chance to take full ownership of the inquiry process. The curriculum was student-centered; during the intervention, the researcher played the role of facilitator—a guide for students as they grappled with assignments that required them to synthesize material, manipulate technology, create unique final products, and evaluate solutions to social justice problems.

*Ethical Considerations.* As with any research, the action researcher must follow ethical guidelines when developing the research plan. Teacher-researchers must be mindful of the power relationships they have with their students, conflicts of interest that emerge in their classroom, and the difficulty in acquiring and maintaining informed consent documentation (Owen, 2006). Students may feel pressure to take part in the study to please the teacher or fear retribution if they fail to participate. Owen (2006) explains that teacher-researchers must take every precaution to assure students “that the decision regarding whether or not to participate could not affect final grades or classroom support” (p. 125). My courses are typically a blend of students from various grade levels, but the majority of them will be minors. To include them in action research and ensure their participation is voluntary, I gained their permission as well as and their parent/guardians’ permission by sending home an informed consent letter requesting parental permission to use their child in the present action research study. This letter clarified to students and parents that their participation was voluntary and participating or refusing to participate in the study in no way impacted their performance in my classroom.
The action research study must maintain the privacy of participants. Assessment data served as a key component of the present study’s research focus. Comparing and contrasting assessment data in the control and treatment classrooms prior to and following project-based learning implementation created aggregate data that maintained confidentiality and anonymity (Mertler, 2014). During the reflection phase of the action research cycle, I shared study results with key stakeholders including the principal, school curriculum coordinator, social studies department chair, and other United States history teachers in the department. When practitioners share research data they must maintain anonymity and may “consider the use of pseudonyms when discussing individual students” (Dana & Yendol-Hoppey, 2014, p. 151). Throughout the study, I kept all student data in a password protected cloud-based storage program and accessed the data via a password-protected laptop issued by my school district.

The teacher-researcher must account for additional ethical considerations including conflicts of interest, vulnerable student populations, and research honesty. The teacher’s first priority is to teach their students; I insured that the present action research complimented instruction rather than interfered. Any potential conflict of interest (Owen, 2006) can deny students the instruction they deserve in favor of the practitioner’s individual professional and academic goals. My classroom environment consists of students with diverse learning needs ranging from honors students to those with medical conditions requiring 504 implementation plans, and the research accounted for this diversity by following established protocol for any students with special learning needs. Finally, the teacher-researcher must also be mindful that their research is both honest and beneficial to students (Mertler, 2014). The present action research study in no way
denied students instruction. The control and treatment groups each received different forms of instruction, but each received instruction nonetheless.

**Acting.** Mertler (2014) defines the second phase in the action research cycle as the *acting* stage where the researcher collects and analyzes data. During this phase I determined how effectively my study answered the research question. In my action research study, I collected quantitative data and then used statistical and inferential analysis to verify how effectively the data measured critical thinking improvement and to identify the key themes and/or questions the study produced.

**Sample.** The goal of action research is to examine the study’s impact on a specific context, and my United States history classroom provided the study context. The students in the classroom provided the sample for my study. A total of 24 students were asked to participate in the treatment group, and of that number, 18 provided consent (n=18). A total of 16 students were asked to participate in the control group, and of that number, 13 provided consent (n=13). All students in both groups were United States history students in a semester long class. The students in both groups were enrolled in the school’s honors track and were taking the course for the first time. Students in both the treatment and control groups were high school juniors. Of the 13 students in the control group, three were males and ten were females. Also, of the 13 students, 12 were White and one student was African-American. Of the 18 students in the treatment group, the sample consisted of ten females and eight males. Of the 18 students in the sample, 13 students were Caucasian, two were African-American, two were Mixed Ethnicities, and one was Hispanic-American. The study began in the fall of 2016; both groups completed the course and the intervention by the end of the fall semester. Since randomization
proved impossible due to the constraints of the school structure, I incorporated convenience sampling to create the study’s sample population. The South Carolina state department of education requires successful completion of United States history as a graduation requirement. Students must complete also an End-of-Course Exam at the conclusion of the course. The intervention occurred within the context of the course curriculum content.

*Data collection.* To determine the impact of project-based instruction on critical thinking, I administered a project-based intervention to a treatment group and compared critical thinking measurements in the form of a pre-test and post-test to the control group’s results. To determine baseline critical thinking abilities, students in both groups completed an identical diagnostic measurement. I used an Advanced Placement United States History Document-Based Question (DBQ) designed by the College Board (2010a). DBQ’s require students to *synthesize* content from relevant documents and *create* an essay that uses the given sources to answer a writing prompt. I then assessed student responses using the College Board’s Advanced Placement United States History DBQ rubric (2010b). DBQ’s are content based and as such, students need familiarity with material prior to completion. I administered the pre-test DBQ at the conclusion of the course’s first unit and selected a DBQ that coincided with the content. The DBQ asked students to analyze ten documents and discuss the impact of Puritan values on economic, political, and social development in 17th century New England.

Treatment intervention occurred during the course’s third unit. I provided an identical historical context for both the treatment group and control group and then implemented project-based instruction for the treatment group. For the control group I
continued traditional instruction in the form of lecture and independent learning activities. At the unit’s conclusion, I again used identical DBQ’s (The College Board, 2010c) and the accompanying scoring rubric (The College Board, 2010d) to measure the improvement or regression in critical thinking skills of both groups. Since the unit focused on Westward Expansion, I selected a DBQ that asked students to analyze 10 documents and discuss the debate over expansion and the influence this debate had on policy development. Students in the treatment group completed the project-based intervention in five successive class periods.

**Treatment.** Students in the treatment group completed a five-day problem-driven project grounded in unit three’s historical topic of 19th century Native American removal; it was connected to the real-world social justice problem of ethnic conflict. The project design followed the seven elements in Grant’s (2002) suggested framework for project-based instruction implementation in the classroom. This research-based project culminated with student creation of a digital product that reflected their learning and the development of plausible solutions to the problem of ethnic conflict.

1. During the initial step, the *Introduction*, I introduced students to the topic and provided a historical context of Native American removal to frame the assignment and the problem question that guided their research.

2. The second element, the *Task*, served as the guiding question for the project. Students developed solutions to contemporary examples of ethnic conflict after researching, comparing, and contrasting these problems to ethnic conflict in United States history.
3. For the third element, *Resources*, I provided students with laptops and access to links to the necessary websites and databases to complete the tasks.

4. The fourth element, *Process*, involved the steps necessary for students to complete the tasks. I linked each task to specific guiding questions. This element required students to analyze and synthesize their research. Students researched the removal of two Native American groups from the frontier, selected a primary source document, and created an annotated bibliography for the primary source text. Students then researched an example of 21st century ethnic cleansing and uploaded a screenshot of a mind map that compared and contrasted the removal of Native Americans in the 19th century with modern examples of ethnic cleansing and genocide. Students created digital artifacts that represented their learning by uploading all work to the class wiki space. In the final stages, students then provided feedback and reaction to two classmates’ wiki space pages and proposed solutions to ethnic conflict based upon the synthesis of their classmates’ work and their own research.

5. The fifth element, *Guidance and Scaffolding*, took place throughout the activity. Students needed clear and consistent guidance regarding technology manipulation (creating accounts, embedding content, etc.), research skills, text analysis, and developing solutions to the social justice issue of ethnic conflict.

6. The sixth element, *Collaboration*, occurred at the project’s conclusion when students read and posted reactions to their classmates’ collective work on the wiki space discussion thread.
7. The final element, Reflection, occurred when students reflected on their research and proposed solutions to their problem. Furthermore, there was a debriefing session in a whole class discussion format where students shared thought on the overall experience.

I also incorporated the five sequential steps of Dewey’s (1910/1991) framework on reflective thinking for the problem-solving component of the project-based intervention.

1. *The student identifies the difficulty or problem.* During this phase of the activity students explored historical examples of ethnic conflict and connected them to contemporary examples.

2. *The student defines the problem.* During this phase, students identified their chosen example of ethnic conflict.

3. *Based upon their own thinking and experiences, students develop possible solutions to the problem.* During this phase, students used their own research as well as the input from classmates during the activity’s collaboration phase to identify possible solutions to the chosen ethnic conflict.

4. *The student develops a hypothesis and creates a plan of inquiry to solve the problem.* Project time constraints limited the development of this step. Students identified possible solutions to the problem but were unable to advance their inquiry further by developing a hypothesis and testing its validity.

5. *The student conducts experimentation to evaluate the validity of the hypothesis.* Time constraints also limited the development of this phase. As part of the action plan developed in the final phases of the action research cycle, students will
systematically research and collect data for the social justice problem in future project-based activities.


**Statistical Analysis.** Descriptive and inferential statistics proved beneficial in the analysis of the study’s quantitative data. Descriptive statistics aided in the organization of data, and measures of central tendency such as the mean, median, and standard deviation demonstrated “with a single score, what is typical or standard about a group of individuals” (Mertler, 2014, p. 169). I calculated the means, medians, and standard deviations of treatment and control group scores on the pre-test, treatment and control group scores on the post-test, and treatment and control group score differentials. Calculating central tendency and variability with standard deviation aided in interpreting data and comparing student achievement.

Descriptive statistics only allowed for the description of data collected during the study. While making generalizations to the wider population is not a key component of my research, inferential statistical analysis such as the independent measures t-test allowed me to determine the statistical and practical significance of the difference between the mean score differentials of the two groups and make cause and effect inferences. For the measurement of critical thinking improvement, I calculated the difference between scores on the pre-test DBQ (The College Board, 2010a) and the post-test DBQ (The College Board, 2010c) of all students in both the control and treatment groups. I then calculated the mean of the differences in each group and used a t-test to
determine if the difference in the means was statistically significant. I also determined the effect size with a Cohen’s $d$ calculation. While action research does not focus on whether or not data results can be generalized from the sample to the population, inferential statistics help the researcher determine if the difference between the control and treatment groups is a result of the intervention or simply a result of chance (Trochim, 2006).

**Developing.** After collecting and analyzing the data from the study, Mertler (2014) identifies the next phase in the action research cycle as the developing phase. The data shapes future action, and in this phase I used the data as a guide to develop a practical action plan to facilitate educational change. To develop the action plan I shared the study results and collaborated with key stakeholders including the principal, school curriculum coordinator, social studies department head, and other United States history teachers in the department.

**Reflecting.** Mertler (2014) identifies reflecting as the final step in the action research process. The action research process is cyclical, and without thorough reflection, the researcher cannot identify the necessary revisions needed to restart the cycle and plan for future studies. Action research provides teachers with the opportunity for discovery about their practice and the opportunity to become better practitioners (Herr & Anderson, 2005). Schon (1992) describes reflection as the “process of getting in touch with the understandings we form spontaneously in the midst of action” and as central to the work of teaching and learning (p. 126). The action research study components—treatments, data, statistics, etc.—become disconnected and irrelevant without an application to the context. The reflecting phase of the action research process allowed for
the opportunity to see the forest in the midst of the trees and make necessary revisions to
the study for the next cycle. The reflection phase provided the opportunity to evaluate
the appropriateness of the action research design along with issues that emerged during
the data collection process. It also allowed for the discovery of study modifications that
could improve the study, analysis of questions and themes that emerged during the study,
and the quest for avenues future researchers might take based upon the study’s findings.

Summary and Conclusion

The diluted United States history curriculum and accountability driven instruction
target the lowest levels of cognition at the expense of critical thinking skills (DeWitt et al., 2013; Gerwin & Visone, 2006). The research question that guided the present action research study is: How does the implementation of project-based learning impact critical thinking skills in a United States History classroom? I answered my research question by implementing a methodology based on Mertler’s (2014) action research cycle of
planning, action, developing, and, reflecting. Phase one of the study, planning, consisted
of researching and identifying a problem of practice and developing a research plan.
Phase two of the study, acting, involved the collection and analysis of data. Phase three
of the study, developing, involved the creation of an action plan of improvement based
upon the study’s data. Phase four, reflecting, involved the sharing of results, a self-
analysis of both the study’s question and methodology, and the identification of avenues
for future inquiry.
CHAPTER 4

FINDINGS AND RESULTS

Introduction

This chapter will discuss the processes involved in the second phase of the action research process, acting, and the findings and interpretation of data from the action research study. The chapter will analyze quantitative data from the pre-tests and post-tests of the study’s treatment and control groups, provide an interpretation of the data through descriptive and inferential statistics, and provide a summarizing conclusion.

Problem of practice. The identified problem of practice for my Dissertation in Practice (DiP) stems from the lack of critical thinking skills in social studies that an essentialist curriculum at a suburban high school in South Carolina has fostered since the arrival of the accountability movement in United States public schooling. Au (2009, 2011) and van Hover, Hicks, and Irwin (2007) explain that these accountability mandates encourage a pedagogical approach that forces faculty to cover content at a rapid pace and target the lowest levels of cognition. The United States history curriculum at my own school requires teachers to cover the extent of United States history in an academic semester. The scholarly literature supports the notion that accountability and testing narrow the social studies curriculum and pedagogy. The current trend is to focus solely on basic facts and neglect other skills (Journell, 2010; Tanner, 2013; Virtue, Buchanan, & Vogler, 2011; Vogler, 2006; Vogler & Virtue, 2007). In order to meet federal and state mandates, state and school administrators adopted a top-down, state mandated
United States history assessment. This high-stakes assessment accounts for 20% of a student’s semester average and assesses the mastery of essential knowledge at the recall level. The identified Problem of Practice for the present action research study stems from the narrowing of the United States history curriculum in the age of accountability and the subsequent neglect of critical thinking development.

**Study rationale.** As Ku, (2009), Renaud and Murray (2008), and Tsui (2002) explain, critical thinking instruction in the classroom introduces learners to the skills necessary they need to make decisions in a rapidly changing world, discover solutions to social justice problems, and develop into lifelong learners. Critical thinking development in social studies in particular prepares students for engagement in the political and social issues of democratic society (Westheimer & Kahne, 2004; Levine, 2010). This study’s significance lies in the examination of project-based instruction as an avenue to promote critical thinking in a United States history classroom.

**Purpose statement and research question.** Implementing a progressive pedagogy such as project-based and problem-driven instruction at this school provides an alternative approach to fostering critical thinking development in the social studies classroom in general and the United States history classroom in particular and provides the skills development students need to become active participants in democratic society (Dewey, 1916/1997). The purpose of my action research study was to examine the potential benefits of project-based learning. To examine the potential effects of project-based learning, I asked the following research question: How does the implementation of project-based learning impact critical thinking in a United States history classroom?
Findings of the Study

Mertler (2014) identifies the second phase of the action research cycle as the acting phase, and during this phase I collected and analyzed data to determine if a relationship existed between the research question constructs. This quantitative action research study collected data from a pre-test and post-test given to a treatment and control group consisting of United States history students in a suburban South Carolina high school to determine the impact of project-based instruction on critical thinking. The sample population consisted of eleventh grade United History students all taking the course for the first time.

Advanced Placement United States History Document-Based Questions (DBQ’s) (The College Board Advanced Placement Program, 2010a, 2010c) served as the pre-test and post-test measurements for the study. DBQ’s measure critical thinking by requiring students to analyze documents, synthesize concepts from the documents, and create a unique essay response that uses this information to answer a writing prompt based upon a concept from United States history. I assessed student responses on both the pre-test and post-test using the Advanced Placement United States History DBQ rubric (The College Board Advanced Placement Program, 2010b, 2010d). This rubric measures an essay’s effectiveness on a scale of one to nine in answering the prompt and integrating the selected documents.

I determined baseline data by administering identical pre-test DBQ’s to both the control and treatment groups. Students completed all essay responses to the pre-test and post-test DBQ’s in a normal classroom setting. To successfully frame a response to a DBQ, the respondent must have a degree of familiarity with the prompt’s historical
content. The pre-test DBQ focused on specific content regarding Puritan New England. To insure the participants’ content familiarity I then collected the data following the completion of the course’s first unit on Colonial America. The post-test DBQ focused on the removal of Native Americans from the American West. Again, in order to insure participants’ content familiarity, the course’s third unit on Westward Expansion served as the intervention unit. Both groups completed the post-test DBQ following this unit’s completion.

During the intervention, instruction for participants in the control group consisted of traditional strategies such as Power Point-based lessons and primary source analysis. Students worked independently on most class activities and completed a traditional summative unit assessment. Instruction for participants in the treatment group consisted of the project-based intervention embedded within contextual content. Students in the treatment group received foundational historical content from course unit three to provide a contextual framework for the project. Instruction took place in the traditional classroom setting in ninety-minute class sessions. Students in the intervention group used school-provided laptops to complete the project’s digital product component.

The intervention that I chose to implement followed Grant’s (2002) framework for project-based instruction implementation in the classroom. Unit three of the course focused on Westward Expansion and the resulting removal of Native Americans. For this project:

1. Students used research databases to locate and analyze articles pertaining to the removal of two Native American tribes of their choosing. Students critically read the text and uploaded a summary of key findings to their
individual page within the classroom wiki space, a virtual education platform where students can create personal pages and upload content.

2. Students located a primary source document about one of the tribes in their initial research, summarized the documents key points, and identified examples of bias within the article. Students added the text to their pages within the classroom wiki space.

3. Students identified a contemporary example of ethnic conflict to connect to the 19th century removal of Native Americans. Students researched the event using the school’s electronic library database and summarized the key points of the ethnic conflict. Students also discussed the form of oppression the ethnic conflict ultimately took (discrimination, genocide, or cleansing).

Students uploaded content to their individual page within the classroom wiki space.

4. Students used the content from their Native American removal research and their ethnic conflict research to create a thinking map using a Web 2.0 tool. Students uploaded a screenshot of the map to their page within the classroom wiki space.

5. Students reacted and provided feedback to content on two classmates’ wiki space page. Based upon their own research, students then synthesized a response that reflected upon their classmates’ research and suggested possible solutions to the project’s task, or guiding problem question regarding ethnic conflict.
6. Students correctly cited all sources used in the creation of content on their wiki space page in MLA format.

7. Students received feedback on their work via the Integrated Performance Assessment (IPA) rubric (Adair-Hauck, et al., 2006; Adair-Hauck & Troyan, 2013).

Students completed all phases of the intervention in class over a period of five days. Following the intervention, I then analyzed data from both groups’ pre-test and post-test assessments to determine the presence of a relationship between project-based instruction and critical thinking. The following results represent the data gathered during the acting phase of the action research cycle (Mertler, 2014).

Table 4.1

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>M</th>
<th>Md</th>
<th>SD</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project-Based</td>
<td>18</td>
<td>2.167</td>
<td>2</td>
<td>.857</td>
<td>.202</td>
</tr>
<tr>
<td>Traditional</td>
<td>14</td>
<td>2.214</td>
<td>2</td>
<td>.892</td>
<td>.239</td>
</tr>
</tbody>
</table>

The first unit of the course focused on Colonial America; following this unit I administered the pre-test to students in the treatment (n=18) and control (n=14) groups. After assessing the essays using the Advanced Placement rubric, I calculated the means and standard deviations of the pre-tests for both groups (see Table 1). The results of the pre-test revealed a mean for the treatment group of 2.167 and a median of two. Scores on the assessment ranged from one to four with a standard deviation of .857. The pre-test revealed a mean for the control group of 2.214 and a median of two. Scores on the
assessment also ranged from one to four with a standard deviation of .892. On average, students in the control group scored higher than students in the treatment group on the pre-test DBQ.

Table 4.2

*Student Performance on Document-Based Question Post-Test*

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>M</th>
<th>Md</th>
<th>SD</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project-Based</td>
<td>18</td>
<td>2.889</td>
<td>3</td>
<td>1.323</td>
<td>.312</td>
</tr>
<tr>
<td>Traditional</td>
<td>14</td>
<td>2.429</td>
<td>2</td>
<td>1.089</td>
<td>.291</td>
</tr>
</tbody>
</table>

Following the completion of the third course unit focusing on Westward Expansion, I administered the post-test DBQ to both groups and calculated the means, medians, and standard deviations of scores for both groups (see Table 4.2). The results of the post-test for the treatment group revealed a mean of 2.889 and median of three. Scores on the assessment ranged from one to five with a standard deviation of 1.323. The results of the post-test for the control group revealed a mean of 2.429 and a median of two. Scores on the assessment also ranged from one to five with a standard deviation of 1.089. Students in the treatment group scored higher on the post-test on average than students in the control group. After collecting data for both the pre-test and the post-test for both groups, I calculated the score differentials on the pre-test and the post-test DBQ’s for all students in both groups to determine improvement levels.
Table 4.3

**Means and Standard Deviations of Score Differentials**

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>M</th>
<th>Md</th>
<th>SD</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project-Based</td>
<td>18</td>
<td>.722</td>
<td>1</td>
<td>.958</td>
<td>.226</td>
</tr>
<tr>
<td>Traditional</td>
<td>14</td>
<td>.286</td>
<td>0</td>
<td>.726</td>
<td>.194</td>
</tr>
</tbody>
</table>

Using the score differentials between the assessments, I calculated the means, medians, and standard deviations of the score differentials for each group (see Table 4.3). The calculations revealed a mean for the treatment group of .722 and a median of one. Score differentials ranged from negative one (the student performed worse on the post-test) to two with a standard deviation .958. The calculations revealed a mean for the control group was .286 and a median of zero. Scores on the assessment ranged from negative one to one with a standard deviation .726. Study results revealed stronger improvement on the post-test for students in the treatment group.

Table 4.4

**Independent t-test Results of Score Differential Means**

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>SE</th>
<th>Df</th>
<th>T</th>
<th>P</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project-Based</td>
<td>18</td>
<td>.722</td>
<td>.958</td>
<td>.226</td>
<td>30</td>
<td>-1.42</td>
<td>.17</td>
<td>.583</td>
</tr>
<tr>
<td>Traditional</td>
<td>14</td>
<td>.286</td>
<td>.726</td>
<td>.194</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The existence of a higher mean score differential for the treatment group revealed a possible relationship between the research questions’ constructs. Since I used the two
independent means of the score differentials for both groups, I conducted an independent t-test using the Data Analysis feature within Microsoft Excel to compare the scores of the traditional instruction control group and the project-based instruction treatment group to determine the statistical significance of my results (see Table 4.4). I used a standard of $p \leq \alpha$ where $\alpha = .05$ to determine statistical significance. The results of the t-test revealed no significant statistical difference in the scores for the Project-Based Group ($M = .722$, $SD = .958$) and the Traditional Instruction Group ($M = .286$, $SD = .726$) where $t(30) = -1.42$ and $p = .17$. The results reveal a lack of statistical significance, but an analysis of the Cohen’s $d$ calculation presents an effect size of .583, which revealed a practical significance that merits additional study.

**Interpretation of Results of the Study**

Several themes emerged during the implementation of the intervention. First, the project process provided an opportunity to transform the classroom into a community of practice (Wenger & Snyder, 2000) where students developed a repertoire of skills that allowed them to become efficient researchers and develop a degree of comfort with technology. This activity not only met the parameters of the project-based intervention as described by Grant (2002), but also the cognitive apprenticeship framework as discussed by Collins, Brown, and Holum, (1991). Throughout the activity, students needed constant modeling, scaffolding, and coaching. Students struggled to navigate the website where they created their digital products. Modeling for students proved necessary for every step in the process including the creation of their own webpage, uploading content, creating thinking maps, and completing their reflection blogs. For each step in the process, I created examples for students to emulate. Students collaborated with their
classmates in the final phase of the project but otherwise completed this assignment independently, and as they worked through the various elements, I provided coaching along the way. As research novices, students also needed guidance navigating research databases.

As students traversed the online databases, I provided scaffolding regarding academic source selection and annotation techniques. I also provided scaffolding as students requested assistance in uploading content to their wiki page as well as I provided feedback as students responded to each other’s research and proposed potential solutions to the problem of ethnic conflict. This reflection element of the cognitive apprenticeship methodology required students to examine their own cognitive processes as well as reflect on their classmates’ conclusions. The learning they gained through interaction with their classmates and teacher throughout the activity supported the theory that collaboration guides learners through the Zone of Proximal Development (Vygotsky, 1978). By the conclusion of the activity, students felt more comfortable with the research and technology elements so that if they were assigned additional research activities for future lessons it is probably they would need less scaffolding. The collaborative nature of the activity and the connections to cultures and contexts beyond the classroom setting through a digital world provided a situated learning context for learners as well (Brown, Collins, & Duguid, 1989).

Based upon the premise that the project intervention required students to analyze texts, evaluate their classmates’ work, and create their own digital products, an initial assumption that the treatment group would perform better on a post-test DBQ that assessed these critical thinking skills seemed appropriate. The study results supported
this initial assumption, but study limitations made any inferences as to the relationship between project-based instruction and critical thinking in this context problematic. The study’s calculation of central tendency revealed that those students in the treatment group scored higher on the critical thinking post-test than the control group resulting in a higher scorer differential for the treatment group on the two assessments. An independent t-test of the score differential means revealed no statistical significance. The project intervention required participants to analyze primary sources, synthesize text, create unique digital products, and evaluate solutions to social justice issues.

The nature of action research negates the necessity of external validity (Mertler, 2014). As a result, the data collected during the study applied only to the students in the specific classroom context, and evaluations of external validity lie beyond the scope of this study. An analysis of the data, however, revealed topics that warrant further discussion should external validity eventually become the goal of additional studies. First, the means of all scores (pre-test, post-test, and score differential) fall within two standard deviations of the mean, revealing little variability. Sample conditions influenced the inability to make broader generalizations, however. The small sample size and the inability to repeat the study produced a sampling error and limited the variability consistency needed for the p-value ≤ α. Repeated studies with the same treatment would inevitably produce different score differential means. Due to the presence of only one mean, the degree of variability of the means proved indeterminable. Given repeated studies with identical conditions, a standard deviation calculation would determine the degree of variability. A smaller sampling error would allow an inference that the sample means closely reflect the wider population. In this study, the results could not be inferred
to the larger population due to the presence of only one mean and an unknown degree of noise.

Convenience sampling created an additional study limitation by increasing the impact of extraneous variables on the outcome of the study through selection biases that could have threatened the study’s internal validity. The inability to randomize prevented the researcher from isolating the impact of the project-based intervention from other extraneous variables that may have affected score differentials. The threat of selection bias appeared to be minimized through the control group’s higher mean score on the pre-test DBQ. However, the implementation of multiple interventions throughout the study and an alternation of the treatment and control groups would allow the researcher to more accurately identify the project-based intervention as the cause of the higher score differentials in the treatment group. Given higher mean score differentials in multiple treatment conditions, the researcher could infer with greater confidence a relationship between the two constructs. Unfortunately, curriculum time constraints prevented multiple interventions during the data collection period.

Multiple extraneous variables potentially impacted study results. Students in both the treatment and control groups took diverse schedules before they enrolled in the United States history course. Students with a more rigorous transcript may have been exposed to instructional strategies that promoted critical thinking, and the potential presence of these students in the treatment group threatened the study’s internal validity as the larger score differentials in the treatment group potentially resulted from this exposure rather than the intervention. Although only a single measure, the control group’s higher mean score ($M=2.214$) on the pre-test DBQ suggested otherwise,
however. Additionally, teachers in previous courses may have required students to complete document-based or argumentation essays similar to those students completed on the pre-test and post-test and students who took those courses would be better equipped to complete the DBQ pre-test and post-test. Even though students in both groups took the post-test after introduction to the content, prior educational experiences may have introduced some of the students to the content on the post-test thereby creating a degree of comfort on the assessment that other students may have lacked. The small sample size also created increased vulnerability of students dropping out of the study. The study was voluntary; with no extrinsic motivation, such as a grade, attached to the post-test assessment student concentration or effort may have suffered (Renaud & Murray, 2008). Multiple samples exposed to the same treatment with similar score differential means would allow a more confident inference as to the impact of project-based treatment on critical thinking.

The measurement that I chose to implement to assess critical thinking for my treatment and control groups constitutes a portion of the Advanced Placement United States History Exam given to students in the Advanced Placement program on an annual basis. The College Board considers a score of nine to be a perfect score. In most Advanced Placement United States history courses students work throughout the course’s duration to perfect their skills in taking this type of assessment. Due to a lack of familiarity with this assessment, I expected students in both groups to score low on the pre-test DBQ. A mean score of 2.167 and median of 2 for the treatment group along with a mean score of 2.214 and a median of two for the control group supported this assumption. The short duration of the course unit and the intervention resulted in an
additional assumption that students in the treatment group would not dramatically increase their scores on the post-test DBQ regardless of the treatment’s effectiveness.

Time constraints also prevented the type of repetitive practice on DBQ skills; primarily document analysis that increases student scores (Rothschild, 2000). In this study, the highest score that any student in the treatment or control group scored on the post-test was five out of nine possible points. Since students may improve on this assessment with practice, I focused instead on the degree of improvement from the pre-test to the post-test. If the study was implemented over a longer duration, the mean score differential may have been higher for the treatment group. Students with the largest increase in either group only increased their score by two points; but in the treatment group, four students increased their score by two points compared to only one student in the control group. The state-mandated curriculum and accompanying high-stakes assessment necessitated a condensation of the project timeline to five days in order to cover the remaining course content and prepare students for the EOC at the end of the semester. Due to convenience sampling, each class served as the treatment and control groups. These time limitations also prevented students from completing a more in-depth project and from completing additional projects that would target the same critical thinking processes at other points in the course. Increased frequency may lead to increased scores on a post-test that assessed these same critical thinking skills.

The study’s small sample size resulted from the necessity of convenience sampling required in the school setting. I only used students scheduled to be in my class for the treatment and control groups. Additionally, of the 24 students enrolled in the course that served as the treatment group, only 18 consented to participate in the study.
Of the 16 students enrolled in the course that served as the control group, only 14 consented to participate in the study. A larger sample size consisting of students from multiple courses (all students enrolled in United States history courses school wide in a given semester for example) may have created results that were statistically significant since the larger sample size would have given the study more statistical power. A larger sample size would also allow for an analysis of score data based upon demographic factors such as race, gender, or socioeconomic status and allow the researcher to determine if these variables have an impact on the relationship between project-based instruction and critical thinking. Valuable insight as to the impact of the intervention on these specific groups may be gained with a larger sample, but an overall sample size of 32 total participants prohibits this type of analysis.

**Conclusion**

The present action research study examined the impact of a project-based intervention on critical thinking in a United States history classroom in a suburban South Carolina high school. Students in the treatment group performed better on the post-test critical thinking assessment than their peers in the control group, but the results of the study were not statistically significant. Better performance on the post-test by the treatment group could have been attributed to extraneous variables such as prior knowledge gained from other social studies courses. Convenience sampling necessitated the use of the students scheduled for my courses, and the small sample size predictably contributed to higher p-values and less statistical power. Larger sample sizes would allow for more statistical power and potentially lower p-values. Even if the independent t-test revealed statistically significant results, the small sample size would cast doubt on
the results. Yet, despite the fact that the independent t-test failed to prove a statistically significant relationship between project-based learning and critical thinking, students in the treatment group did perform better on the post-test. The lack of statistical significance does not provide the necessary support to infer a relationship between the research question’s two constructs, however the presence of practical significance warrants additional inquiry.

The following chapter discusses the final two phases of the action research cycle, developing and reflecting. Within these phases, the researcher-practitioner used study results to develop an action plan to improve instruction, reflected on the study methodology, and made suggestions regarding the path forward for study improvements and potential future studies that evaluate the impact of project-based instruction on critical thinking.
CHAPTER 5

SUMMARY, CONCLUSION, AND ACTION PLAN

Introduction

This chapter will discuss the elements of the final two phases of the action research cycle, developing and reflecting. The chapter will also provide an overview of the study and outline the major points, address key questions, discuss the role of the action-researcher, and address strategies to facilitate educational change. This chapter will conclude with a discussion of the development of the action plan as guided by the results of the study and suggestions for future inquiry.

Problem of Practice. The identified problem of practice for my Dissertation in Practice (DiP) stems from the lack of critical thinking skills in social studies that an essentialist curriculum and teach-to-the-test instructional strategies promote. (Au, 2009, 2011; van Hover, Hicks, & Irwin, 2007; Vogler, 2006; Vogler & Virtue, 2007). This dramatic shift in pedagogical practice impacted United States history in particular as teachers narrow their curriculum and instruction to meet the accountability’s demands (Journell, 2010; Virtue, Buchanan, & Vogler, 2011). To satisfy these demands the state of South Carolina and the administrators at the research site incorporated a high-stakes assessment in the form of an End-of-Course test. This assessment requires students to recall factual data and carries a weight of 20% of the student’s overall semester average. Segall (2006) poignantly compares the pressures teachers face with accountability to navigating a minefield. These pressures informed the identification the study’s Problem
of Practice which includes an examination of the struggles teachers face when they implement progressive pedagogies such as project-based instruction that promote critical thinking.

**Study Rationale.** Teaching critical thinking has profound importance in public education as its incorporation in the curriculum promotes the skills necessary to solve social problems and help students become lifelong learners (Ku, 2009; Renaud & Murray, 2008; Tsui, 2002;). Promoting critical thinking in the social studies curriculum prepares learners to become full participants in our democratic society (Dewey, 1916/1997; Levine, 2010; Westheimer & Kahne, 2004;). Unfortunately, standards and the high-stakes assessments that accompany them interfere with critical thinking instruction (Au, 2009, 2011; van Hover, Hicks, & Irwin, 2007), and this study’s significance lies in the examination of an avenue to promote critical thinking in the classroom—project-based instruction.

**Purpose Statement and Research Question.** Implementing a progressive pedagogy such as project-based and problem-driven instruction at this school provided an alternative approach to fostering critical thinking development in the social studies classroom in general and the United States history classroom in particular. The purpose of the present action research study was to examine the potential benefits of project-based learning by focusing on the following research question: how does the implementation of project-based learning impact critical thinking in a United States History classroom?

**Summary of the Study**

**Study Overview.** This quantitative action research study collected data from two groups of United States history students: a control group who received traditional
instruction and a treatment group who received a project-based intervention. The study commenced at a suburban South Carolina high school with participants taking part during the fall of 2016. Study participants consisted of United States history students in the honors track taking United States history for the first time. I assigned students to treatment and control groups through convenience sampling. Students in both groups completed a pre-test and post-test using the United States History Advanced Placement History Document Based Question (DBQ) (College Board Advanced Placement Program, 2010a, 2010c) as the measurement. Students completed the pre-test following the completion of the course’s first unit on Colonial America.

The intervention occurred during the course’s third unit on Westward Expansion. Students in the control group received traditional instruction in the form of Power Point lectures and primary source analysis. The intervention group received the project-based intervention embedded within the context of content and completed the activity within Grant’s (2002) framework for project-based instruction implementation in the classroom. Students in the intervention group completed the project over a five-day period, and the rubric designed through the Integrated Performance Assessment (IPA) model served as the assessment tool. Both groups completed the post-test DBQ immediately following completion of this unit.

On the pre-test, students in the control group (2.214) scored higher on average than students in the treatment group (2.167), but on the post-test, students in the treatment group scored higher on average (2.889) than students in the control group (2.429). With the treatment group score differential higher on average (.722) than the control group...
score differential (.286) students in the treatment group demonstrated greater improvement in their scores than the students in the control group.

Results from an independent t-test revealed a p-value of .17 where $\alpha \leq .05$. The statistically insignificant results prevent the researcher from making an inference as to the relationship between project-based instruction and critical thinking in the study context. The study’s small sample size proved to be a determining factor in the higher p-value. Convenience sampling necessitated that study participants come from the students within the classroom context. The 18 participants who served as the treatment group and the 14 students who served as the control group came from classes of 24 and 17 respectively. The smaller sample size increased the vulnerability of the study to mortality. In each case, several students declined to participate or withdrew from the study before completion. The small sample size also created a sampling error. Additional studies with identical research conditions and similar score differential means would indicate limited variability. In the current study the degree of noise proved indeterminable. An analysis of the effect size, however, revealed a Cohen’s d score of .583, a score practically significant enough to warrant additional inquiry regarding the impact of project-based instruction on critical thinking through the development of an action plan.

**Key Questions from Study Findings.** Several key questions emerged from the results of the study:

1. How can the social studies faculty advance best practices within the department?
2. What study changes or modifications will promote further analysis of the relationship between project-based instruction and critical thinking?
3. What instructional changes can increase authenticity and advance social justice?
4. What project modifications can advance reflective thinking?
5. How can United States history teachers in particular overcome their hesitation to implement progressive pedagogies such as project-based learning in a classroom environment grounded in accountability?

These questions guided the collaborative discussions with stakeholders, and the development of the components of the action plan.

**The Role of the Action Researcher.** In the practitioner-researcher tradition, the teacher serves as both the researcher and a key component of the study. A key difference between traditional and action research is the role of the researcher, or researcher positionality. As Herr & Anderson (2005) explain, the researcher positionality consists of the role of the teacher-researcher as insider or outsider. Traditional research views the researcher’s direct involvement in the study as a threat to validity and requires the researcher to remain as an outsider. My role as teacher in this action research study, allowed me to position myself as an insider studying and reflecting upon my own practice. I embedded myself within the research process by designing all activities, providing instruction for both treatment and control groups, and collecting and reflecting upon all research data. My insider role fostered my own professional development, and a key challenge to my insider role was the observation of the taken-for-granted qualities of my classroom from an outsider’s perspective (Herr & Anderson, 2005). Since as much as possible I embedded the research in the context of normal classroom activity, my insider status created a degree of familiarity that benefitted my students.
Time constraints presented a significant challenge during the action research process. Curriculum boundaries created by a regimented pacing guide and impeding End-of-Course Exam limited the depth and scope of the intervention process. A five-day intervention window prevented the full development of Grant’s (2002) project-implementation process. The student collaboration piece suffered, as students were not able to spend time brainstorming ideas. After providing historical content as a contextual backdrop and introducing the project and process, the treatment group began work immediately. Initial student collaboration would have allowed students to brainstorm research ideas as they chose Native American tribes and contemporary examples of ethnic conflict. In order for the intervention to have been truly dynamic, the intervention group needed the freedom and the time to develop and investigate their own topics, make their own predictions, test their own hypotheses, develop new ways to present their artifacts, and test their solutions to the task through trial and error (Clark, 2006). The students in the treatment group did not benefit from these strategies due to the time constraints created by the essentialist curriculum and high-stakes tests.

Limited collaboration opportunities with other faculty in my department proved to be a challenge during the course of the action research study. During the planning phase (Mertler, 2014) of the action research cycle, I discovered through collaboration with my department colleagues a level of resistance to implementing a project-based pedagogy. Other United States history teachers were especially hesitant due to the time constraints standards and high-stakes assessments create. The inability to collaborate with colleagues within my own department required networking with other departments, most notably the Science, Technology, Engineering, and Mathematics (STEM) faculty to gain
input on project-based instruction efforts. These instructors incorporate problem-driven instruction with an artifact component as a key component of the course curricula. The social studies component of the STEM curriculum, STEM Humanities, incorporates a project-based approach into the curriculum through interdisciplinary instruction that blends history, science, and mathematics.

Implications of Research Findings

Participatory Action Plan. An examination of the present action research study’s findings led to the third stage of the action research cycle. The developing stage culminated with creation of an action plan informed by the study’s results (Mertler, 2014). During this phase, the participant-researcher determined the significance of the study’s results and the appropriate plan of action to promote educational change within the research context. Mertler (2014) describes action plans as “formal or informal plans that follow from the results of action research, designed to guide either future cycles of action research or strategies for implementation or both” (p. 305). This present action research study’s results fostered the development of an action plan (see Table 5.1) with key input from stakeholders including the principal, school curriculum coordinator, social studies department head, and colleagues within the social studies department. The action plan suggests the creation of a community of practice within the social studies department and the implementation of school wide professional development centered on project-based learning. The plan also suggests improvements to the instructional framework by creating a cognitive apprenticeship with the community, personalizing the social justice component, and placing greater emphasis on reflective thinking (Dewey 1910/1991).
**Table 5.1**

*Action plan guided by study results*

<table>
<thead>
<tr>
<th>Elements of the Plan</th>
<th>Staff Responsible for Implementation</th>
<th>Timeframe</th>
<th>Required Resources</th>
<th>Measurement of Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creation of Departmental Community of Practice</td>
<td>Social Studies Faculty, School Administration</td>
<td>1 Semester</td>
<td>Document Sharing Technology, Shared Planning</td>
<td>Qualitative Measurements</td>
</tr>
<tr>
<td>School Wide Professional Development</td>
<td>Faculty Administration</td>
<td>1 Semester</td>
<td>Meeting Space and Staff Development Professional Days</td>
<td>Qualitative Measurements</td>
</tr>
<tr>
<td>Cognitive Apprenticeship Community Engagement</td>
<td>Teacher Administration</td>
<td>1 Semester</td>
<td>Community Network</td>
<td>Rubric-Based Assessments, Pre-tests/Post-Tests</td>
</tr>
<tr>
<td>Increased Focus on Social Justice</td>
<td>Teacher</td>
<td>1 Semester</td>
<td>Technology to Conduct Research and Create Products</td>
<td>Rubric-Based Assessments, Pre-Tests Post-Tests</td>
</tr>
<tr>
<td>Advancement of Reflective Thinking</td>
<td>Teacher STEM Faculty</td>
<td>1 Semester</td>
<td>Technology to Conduct Research and Create Products</td>
<td>Rubric-Based Assessments, Pre-tests Post-Tests</td>
</tr>
</tbody>
</table>

The school principal and curriculum coordinator provided the input for the first component of the action plan. They both agreed that the results of the study merited additional inquiry, but expressed reluctance to implement a school-wide strategy without additional data gathered from further exploration of the project-based strategy at the department level. The lack of familiarity with progressive pedagogies and the constraints
of the curriculum discourage faculty from exploring the benefits of project-based instruction. The first component of the action plan involves creating these exploration opportunities through a community of practice within the social studies department that allows the faculty time to collaborate and time to share best practices regarding project-based instruction implementation over the course of a semester. Butler, Lauscher, Jarvis-Selinger, and Beckingham (2004) explain that creating communities of practice as the vehicle for teacher professional development insures that teachers do not learn in a vacuum; teacher learning occurs as an extension of reflection on action. Teachers in the social studies department outside of the United States history curriculum implement projects on a regular basis. The Microeconomics and Military History teacher, for example, provided numerous examples of project-based instruction that connected students to real-world problem solving through content application. Likewise, the STEM Humanities (a social studies elective course that employs an interdisciplinary instructional approach) teacher shared how a unique project framed in the common ground of the sciences and the humanities serves as the context for addressing real-world problems such as water quality and resource sustainability. STEM-based projects incorporate reflective thinking (Dewey, 1910/1991) by having students test their hypotheses through experimentation.

Unfortunately, other social studies faculty, particularly those teaching United States history courses avoid these activities due to the fact-based nature of the End-of-Course Exam. Transforming the social studies department into a Community of Practice allows those with limited project-based instruction experience to learn best practices from their peers who regularly employ this strategy. With continued implementation and
collaboration, the United States history faculty may discover that instructional strategies that target critical thinking may yield better results on standardized achievement tests as Geier, et al. (2008) demonstrate in their study on the impact of inquiry-based learning on student achievement in science courses. At the conclusion of the semester, the researcher will gather qualitative data as feedback on the effectiveness of the community of practice model. As the social studies faculty grows in confidence in their ability to implement project-based instruction in the classroom over the course of a semester they then share this progressive instructional strategy with the entire school through school-wide professional development.

During the second phase of the action research process, the social studies faculty armed with confidence in their pedagogy will share their best practices with the wider faculty over the course of the following semester with the goal of advancing the project-based instructional approach. Traditional teacher professional development typically involves the dissemination of knowledge from an outside expert. As Sandholtz (2002) explains through a mixed methods study of teacher perceptions of inservice training best practices, teachers instead support the idea of collaboration opportunities with content specific teachers, full faculty training sessions that include department breakout sessions, and teacher involvement in planning professional development. As the pedagogical experts in the school-wide community of practice, the social studies faculty, with administration facilitation, will plan and lead the professional development sessions, will provide scaffolding for project-based novices, and will provide opportunities for department-based breakout sessions so faculty can focus on specific opportunities unique to their own content areas. As the semester concludes, the social studies faculty and
researcher will collect additional qualitative data to provide feedback on the effectiveness of the training sessions.

The action plan’s third phase focuses on the actual project process and recommends the creation of a cognitive apprenticeship within the project-based model that moves the learning context beyond the classroom and connects students with their community through partnerships with local experts. The project-based instruction paradigm rests firmly within the cognitive apprenticeship framework (Driscoll, 2005) and expanding the already present classroom cognitive apprenticeship beyond the school walls increases the activity’s authenticity. In the context of history, project-based instruction that networks with the broader community immerses the learner in the world of the historian or the museum curator and provides opportunities for the learner to witness the application of their content to a real-world context. In this model, the teacher serves as the facilitator between the learner and the community practitioner and continues to demonstrate expert strategies for their students inside the classroom (Collins, Brown, & Holum, 1991). Following the completion of the project, the teacher assesses the student’s work through a rubric grounded in the Integrated Performance Assessment (IPA) model (Adair-Hauck, et al., 2006; Adair-Hauck & Troyan, 2013).

The fourth phase of the action plan also expands the project design to strengthen the social justice component. This study’s intervention required treatment group members to research contemporary examples of ethnic conflict as a connection to content related to Native American removal. Crocco (2003) explains that the school, and in particular the social studies curriculum, promotes a culture of inclusiveness by embracing ethnic, gender, sexual, and economic diversity. The United States history content
standards (2011) in this state celebrate the achievement of white males at the expense of these marginalized groups. Problem solving remains the key component of the project creation process (Grant, 2011; Hanney & Savin-Baden, 2013), and problems of social justice and marginalization lie at the forefront of worthy inquiry. Learners can further personalize the activity by using assigned content to analyze how historical trends and policies influence the marginalized group of their choice, how this group remains marginalized today, and what potential solutions can create inclusiveness for their group. Project-based instruction conducted over the course of a semester can make social justice a concrete reality for learners. Like the study’s project-based intervention and the cognitive apprenticeship component of the action plan, the IPA rubric will serve as the assessment for future projects that broaden the social justice component.

The final phase of the action plan supports the advancement of reflective thinking (Dewey, 1910/1991). The intervention targeted the critical thinking skills of analyzing, evaluating, and creating as defined by Anderson and Krathwohl (2001). Students analyzed primary source documents and identified key themes, evaluated their own and their classmates’ research to develop solutions to the project’s guiding social justice problem. Dewey’s reflective thinking (1910/1991) framework incorporates a systematic approach to the problem solving process. The five logical steps include identifying the problem, defining the problem, identifying possible problem solutions, developing a hypothesis to test the solution, and experimenting to determine the hypothesis’ validity. Students in the treatment group explored the first three steps of the reflective thinking process during the project-based intervention. Time constraints inhibited the full development of the reflective thinking process. The teacher will account for time
limitations by aligning the reflective thinking process more closely to project-based instruction. Over the course of an academic semester, the teacher will collaborate with STEM faculty to discover best practices for hypothesis development and experimentation. As the teacher implements these modified projects in the classroom using Grant’s (2002) framework, he or she will coach students to include their experimentation results as a component of their digital products. As with other project-based interventions, the teacher will assess the projects using the IPA rubric and continue to evaluate the impact of project-based instruction on critical thinking with DBQ pre-tests and post-tests.

Facilitating Educational Change. Several factors impeded the ability to facilitate educational change during the action research process. The significant hurdle the United States history faculty at the research site faces involves the pressures of accountability and standardized assessments. As discussions with other members of the faculty indicated, content areas outside of United States history, unburdened by an EOC that targets the lowest levels of cognition (Savery, 2006), regularly implement project-based instruction into their curriculum. United States history colleagues cited time constraints as the chief factor in their hesitation to implement project-based instruction. Teachers feel pressure to cover a tremendous amount at a rapid pace in order to expose their students to the material the EOC assesses. These curriculum realities justify teachers’ hesitation to devote instructional time to a new pedagogy that encourages learners to problem-solve, collaborate, and create digital products. In order for the action research process to facilitate educational change in the classroom, the action plan must create a level of comfort in the project-based approach so that teachers can incorporate
the pedagogy within the context of their content and abandon the top-down, content-driven pedagogy that defines the essentialist curriculum. Attacking the content standards from the point-of-view of student-centered strategies that promote critical thinking reinforces the content often taught at the recall level. Teachers may feel more freedom to embrace this point-of-view with educational changes at the policy level that relax accountability standards and reduce the importance of high-stakes assessments. Until this change occurs, project-based instruction may provide teachers an avenue to advance critical thinking.

Suggestions for Future Research

The final phase of the action research process, reflecting, required me to evaluate the effectiveness of my chosen methodology in answering the research question, the significance of the study’s data, and identify a roadmap for future inquiry (Mertler, 2014). Sharing the study’s results and collaborating with colleagues in the social studies department also yielded insights into potential study modifications.

Even though the study produced results lacking statistical significance, the study’s practically significant results encourage additional inquiry. The small sample size created limited statistical power and impaired the study’s ability to produce statistically significant results. A study with identical conditions and a larger sample size (for example, all United States history students in a given semester throughout the school) would increase statistical power. Additionally, the presence of only one mean score differential negated variability consistency. Given repeated studies with identical research conditions additional score differential means would allow a standard deviation calculation to identify the degree of variability. A smaller sampling error would allow an
inference that the sample means represent the wider population. Likewise, changing the study’s parameters could also influence results. A quantitative study with a longer intervention period and more in-depth project intervention or a study with multiple interventions may increase mean score differentials for the treatment group. Studies with a longer intervention period would also allow the researcher to alternate the treatment and control groups to isolate the impact of the project-based intervention on critical thinking.

Studies that utilize additional measurement tools may provide further inferences of a relationship between project-based instruction and critical thinking. The present study employed a pre-test DBQ (College Board Advanced Placement Program, 2010a) and post-test DBQ (College Board Advanced Placement Program, 2010b) as the sole critical thinking measurement. Additional studies that examine the relationship between the same constructs and use critical thinking measurements such as the California Critical Thinking Skills Test (CCTST), the Cornell Level Z Critical Thinking Test (CLZ) or other critical thinking assessments that employ a selected response format may triangulate the results of the essay responses used in the present action research study (Hatcher, 2011). Following Geier et. al (2008), an additional study that compared a sample population receiving project-based instruction for the course duration with a sample population receiving traditional instruction for the same period which employed the EOC as the measurement would analyze the impact on project-based instruction on student achievement on a standardized high-stakes assessment. Study results that produce higher scores for the intervention group on the EOC would provide further validation as to the merits of this pedagogy.
The present study’s sample population consisted of students in the school’s honors curriculum. Building upon Geier et al., (2008), Han, Capraro and Capraro’s (2015) study examined the impact of project-based instruction on student achievement among low-performing students within a STEM mathematics program. Their findings revealed that project-based instruction benefitted low-achieving Hispanic students to a greater degree than other students within the study and created more collaboration opportunities than traditional instructional methods. Future studies could examine the impact of project-based instruction on critical thinking within the social studies context among low-achieving and minority students. Studies with larger sample sizes would also allow an analysis of how specific demographic variables such as race and gender influence critical thinking development within the project-based instruction paradigm. The present study’s small sample size prohibited this analysis.

Through interviews, observations, and document analysis, Grant (2011) collected qualitative data analyzing student perceptions of project-based learning. Additional studies that collect similar qualitative data would triangulate study results and better inform the development of an action plan. Study participants will have the opportunity to provide direct feedback as to the strengths and weaknesses of the project design, how well the intervention promoted critical thinking compared to their experiences with traditional instruction, how well the project activity raised their social justice awareness, and how well the project activity connected with their own personal experience. Tamin and Grant (2013) collected qualitative data on project-based learning from the perspective of teachers. As part of the present action plan, the researcher will collect informal qualitative data to determine the effectiveness of the professional development
components. Consequently, additional formal studies collecting similar qualitative data from the teacher perspective augments present project-based instruction research.

**Conclusion**

This action research study examined the relationship between two constructs, project-based instruction and critical thinking in a United States history classroom. The research focus stemmed from the problem of practice of accountability and high stakes assessments that creates a teach-to-the test curriculum. A student-centered strategy such as project-based learning promised to foster critical thinking that the traditional curriculum neglects. I conducted the study with the action research methodology consisting of the cycle of planning, acting, developing, and reflecting as defined by Mertler (2014). During the planning phase of the study, I identified the problem of practice through peer collaboration, developed a research focus and subsequent questions, and conducted a review of related research and literature. During the acting phase, I identified my sample population and treatment and control groups and collected and analyzed quantitative data. During the developing stage, I used the study data to design a practical plan of action to facilitate educational change within my classroom, department, and school. In the final step of the action research cycle, reflecting, I evaluated how effectively I answered the research question and identified avenues for future research.

The study occurred during the fall of 2016 at a South Carolina suburban high school with a sample population consisting of high school juniors in the honors track completing United States history for the first time. With randomization impossible due to the school structure, I used convenience sampling to assign participants to a treatment and control group. Both groups completed a pre-test consisting of a Document-Based
Question from the United States History Advanced Placement Exam (The College Board, 2010) to determine baseline data. Students in the treatment group then completed a five-day project-based intervention that followed the elements of the Grant (2002) framework for project-based instruction implementation. At the conclusion of the intervention, both groups then completed a post-test DBQ to measure improvement levels. I used descriptive and inferential statistics to analyze the study data. Despite the treatment group exhibiting a higher mean score differential than the control group, an independent t-test revealed that the study results lacked statistical significance. Several limiting factors such as a small sample size, a single intervention, and a limited intervention period contributed to this insignificance, however. A Cohen’s $d$ analysis revealed practically significant results and informed the creation of an action plan to further study project-based instruction’s impact on critical thinking.

In the final phases of the action research cycle, I collaborated with key stakeholders including my principal, department chair, school curriculum coordinator, and colleagues in the social studies department to develop a plan of action. This participatory plan involves several components including the creation of a community of practice within the social studies faculty to advance the implementation of project-based instruction, the implementation of school-wide professional development to familiarize other departments with the benefits and best practices of the project-based approach, and the expansion of project-based instruction to include a cognitive apprenticeship through community involvement. Future research avenues include studies that collect quantitative data using larger sample sizes and repeated conditions, studies with changing
parameters such as more in-depth and repeated interventions, and studies that collect qualitative data from the perspective of teachers and students.

Navigating the obstacles of accountability and testing requires educators to find creative instructional strategies that bring relevance to the United States history curriculum. Implementing a progressive pedagogy such as project-based instruction provides an avenue to increase relevancy, introduce learners to 21st century skillsets, differentiate instruction, incorporate technology, create authentic learning experiences that connect learners to the community and foster critical thinking. Combined, these benefits prepare students to become active participants in democratic society.
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APPENDIX A:

DOCUMENT BASED QUESTION PRE-TEST

2010 AP® UNITED STATES HISTORY FREE-RESPONSE QUESTIONS

UNITED STATES HISTORY
SECTION II
Part A
(Suggested writing time—45 minutes)
Percent of Section II score—45

Directions: The following question requires you to construct a coherent essay that integrates your interpretation of Documents A–J and your knowledge of the period referred to in the question. High scores will be earned only by essays that both cite key pieces of evidence from the documents and draw on outside knowledge of the period.

1. In what ways did ideas and values held by Puritans influence the political, economic, and social development of the New England colonies from 1630 through the 1660s?

Document A


... wee must be knit together, in this worke, as one man. Wee must entertaine each other in brotherly affection. Wee must be willing to abridge ourselves of our superfluities, for the supply of others' necessities. Wee must uphold a familiar commerce together in all meekness, gentleness, patience and liberality. Wee must delight in eache other; make other's conditions our owne; rejoice together, mourne together, labour and suffer together, always having before our eyes our commission and community in the worke, as members of the same body. ... The eyes [eyes] of all people are upon us. Soe that if wee shall deale falsely with our God in this worke; wee have undertakon, and soe cause hym to withdrawe his present help from us, wee shall be made a story and a by-word through the world.
2010 AP® UNITED STATES HISTORY FREE-RESPONSE QUESTIONS

Document C

Source: The Enlarged Salem Covenant of 1636.

In public or private, we will willingly do nothing to the offence of the church . . .

We bind our selves to study the advancement of the gospel in all truth and peace; both in regard of those that are within or without [church membership] . . . not laying a stumbling block before any, no, not the Indians, whose good we desire to promote . . .

We do hereby promise to carry our selves in all lawful obedience to those that are over us, in Church or Commonwealth, knowing how well pleasing it will be to the Lord . . .

We resolve to approve our selves to the Lord in our particular callings; shunning idleness as the bane of any state; nor will we deal hardly or oppressingly with any, wherein we are the Lord's stewards.

Promising also unto our best ability to teach our children and servants the knowledge of God, and of His Will, that they may serve Him also; and all this not by any strength of our own, but by the Lord Christ . . .

Document D

Source: William Bradford, after the colonists’ attack on the Pequot’s Mystic River village, 1637.

It was a fearful sight to see them thus frying in the fire, and the streams of blood quenching the same; and horrible was the stink and scent thereof; but the victory seemed a sweet sacrifice, and they gave the praise thereof to God, who had wrought so wonderfully for them, thus to enclose their enemies in their hands, and give them so speedily a victory over so proud, insulting, and blasphemous an enemy.
Document E

Source: A statement about education in New England, 1643.

After God had carried us safe to New England, and wee had builded our houses, provided necessaries for our livelihood, rear'd convenient places for Gods worship, and settled the Civil Government. One of the next things we longed for, and looked after was to advance Learning, and perpetuate it to Posterity; dreading to leave an illiterate Ministry to the Churches, when our present Ministers shall lie in the Dust. And as wee were thinking and consulting how to effect this great Work; it pleased God to stir up the heart of one Mr. Harvard . . .

Document F


God requireth not a uniformity of religion to be enacted and enforced in any civil state; which enforced uniformity sooner or later is the greatest occasion of civil war, ravishing of conscience, persecution of Christ Jesus in his servants, and of the hypocrisy and destruction of millions of souls.
Document G


He that is willing to tolerate any religion, or discrepant way of religion, besides his own, unless it be in matters merely indifferent, either doubts of his own or is not sincere in it. . . .

That state that will give liberty of conscience in matters of religion, must give liberty of conscience and conversation in their moral laws, or else the fiddle will be out of tune, and some of the strings crack.

Document H


Let all the world learn to give mortal men no greater power than they are content they shall use—for use it they will. And unless they be better taught of God, they will use it ever and anon. . . . No man would think what desperate deceit and wickedness there is in the hearts of men.

It is therefore most wholesome for magistrates and officers in church and commonwealth never to affect more liberty and authority than will do them good, and the people good: for whatever transcendent power is given will certainly over-run those that give it and those that receive it. . . .

It is therefore fit for every man to be studious of the bounds which the Lord hath set: and for the people, in whom fundamentally all power lies, to give as much power as God in His word gives to men. . . .

So let there be due bounds set—and I may apply it to families: it is good for the wife to acknowledge all power and authority to the husband. . . .

And so for children and servants, or any other you are to deal with: give them liberty and authority you would have them use, and beyond that stretch not the tether; it will not tend to their good nor yours.
Document I

Source: Robert Keayne, in his last will and testament, 1653.

[My account books] . . . testify to the world on my behalfe that I have not lived an idle, lazie or dronish life nor spent my time wantonly, fruitlessly or in company keeping as some have beene too ready to aspers[e]me or that I have had in my whole time either in Old England or New, many spaire houres to spend unprofitably away or to refreshe myself with recreations . . . but have rather studyed and endeavord to redeem my time as a thing most deare and precous to me and have often denied myself in such refreshings that otherwise I might lawfully have made use of.

Document J


My Fathers and Brethren, this is never to be forgotten that New England is originally a plantation of Religion, not a Plantation of Trade. Let merchants and such as are increasing Cent per Cent remember this . . . that worldly gain was not the end and designe of the people of New England, but Religion.

END OF DOCUMENTS FOR QUESTION 1
APPENDIX B:

DOCUMENT-BASED QUESTION PRE-TEST SCORING GUIDE

AP® UNITED STATES HISTORY
2010 SCORING GUIDELINES

Question 1 — Document-Based Question

In what ways did ideas and values held by Puritans influence the political, economic, and social development of the New England colonies from 1630 through the 1660s?

The 8-9 Essay
- Contains a well-developed thesis that analyzes the ways in which Puritan ideas and values influenced the political, economic, and social development of the New England colonies from 1630 through the 1660s.
- Presents an effective analysis of the ways in which Puritan ideas and values influenced the political, economic, and social development of the New England colonies:
  - Discussion of the influence of Puritan ideas and values on the political, economic, and social development of the New England colonies may be somewhat imbalanced.
  - Discussion of one factor may be embedded in the discussion of other factors.
- Effectively uses a substantial number of documents.
- Supports thesis with substantial and relevant outside information.
- May contain minor errors but is clearly organized and well written.

The 5-7 Essay
- Contains a thesis addressing the ways in which Puritan ideas and values influenced the political, economic, and social development of the New England colonies from 1630 through the 1660s.
- Has limited analysis of the ways in which Puritan ideas and values influenced the political, economic, and social development of the New England colonies:
  - Discussion of the influence of Puritan ideas and values on the political, economic, and social development of the New England colonies may be imbalanced.
  - Discussion of one factor may be embedded in the discussion of other factors.
- Effectively uses some documents.
- Supports thesis with some relevant outside information.
- May have errors that do not seriously detract from the quality of the essay.
- Shows acceptable organization and writing; language errors do not interfere with comprehension.

The 2-4 Essay
- Contains a limited or undeveloped thesis.
- Deals with the question in a general manner; simplistic, superficial treatment of the subject.
- Merely paraphrases quotes or briefly cites documents.
- Contains little outside information or information that is inaccurate or irrelevant.
- May have major errors.
- May be poorly organized and/or written.

The 0-1 Essay
- Contains no thesis or a thesis that does not address the question.
- Exhibits inadequate or incorrect understanding of the question.
- Has little or no understanding of the documents or ignores them completely.
- Has numerous errors.
- Is written so poorly that it inhibits understanding.

The Blank Essay
- Is blank or completely off topic.
APPENDIX C:

DOCUMENT-BASED QUESTION POST-TEST

2010 AP® UNITED STATES HISTORY FREE-RESPONSE QUESTIONS (Form B)

UNITED STATES HISTORY
SECTION II
Part A
(Suggested writing time—45 minutes)
Percent of Section II score—45

Directions: The following question requires you to construct a coherent essay that integrates your interpretation of Documents A-1 and your knowledge of the period referred to in the question. High scores will be earned only by essays that both cite key pieces of evidence from the documents and draw on outside knowledge of the period.

1. The issue of territorial expansion sparked considerable debate in the period 1800-1855.
   Analyze this debate and evaluate the influence of both supporters and opponents of territorial expansion in shaping federal government policy.
   Use the documents and your knowledge of the years 1800–1855 in your answer.

Document A

Source: Congressional debate, October 1833.
James Elliot, Federalist, Vermont:
The Constitution is silent on the subject of the acquisition of territory. By the treaty we acquire territory: therefore the treaty is unconstitutional.
Samuel Thacher, Federalist, Massachusetts:
This acquisition of distant territory will involve the necessity of a considerable standing army, so justly an object of terror. Do gentlemen flatter themselves that by purchasing Louisiana, we are invincible? No, sir, Spain will still border on our southern frontier, and so long as Spain occupies that country we are not secure from the attempts of another nation more warlike and ambitious.
William Plumer, Federalist, New Hampshire:
Admit this western world into the union, and you destroy with a single operation the whole weight and importance of the eastern states.
Document B

DISTRIBUTION OF VOTES IN THE HOUSE OF REPRESENTATIVES ON THE DECLARATION OF WAR, JUNE 4, 1812

Dots represent homes of members voting on measure, as follows:
- Affirmative
- Negative

GO ON TO THE NEXT PAGE.
Document C

Source: Lewis Cass, in Documents and Proceedings Relating to the Formation and Progress of a Board in the City of New York, for the Emigration, Preservation, and Improvement of the Aborigines of America, 1829.

Existing for two centuries in contact with a civilized people, [the Cherokees] have resisted, and successfully too, every effort to meliorate [improve] their situation, or to introduce among them the most common arts of life. Their moral and their intellectual condition have been equally stationary. And in the whole circle of their existence, it would be difficult to point to a single advantage which they have derived from their acquaintance with the Europeans. All this is without a parallel in the history of the world. That it is not to be attributed to the indifference or neglect of the whites, we have already shown. There must then be an inherent difficulty, arising from the institutions, character, and condition of the Indians themselves.
Source: The Eagle Map of the United States, 1833.

Document F

Source: Thomas Hart Benton, speech in the United States Senate, 1844.

"The settlers in Oregon will also recross and open for us the North American road to India. This road lies through the South Pass, and the mouth of the Oregon; and as soon as the settlements are made, our portion of the North American continent will immediately commence its Asiatic trade on this new and national route."
Document G

Source: Letter from Andrew Jackson to Moses Dawson, published in Niles' National Register, 1844.

If there be patriotism in the effort to increase the wealth and happiness of all classes in our society—to diffuse the blessings of equal laws, and a just government...if there be love in the spirit which finds in this free land of ours the means to spread the light of the Gospel, and to teach fallen man throughout the world how he may recover his right to civil and religious liberty—it seems to me that all this patriotism—all this philanthropy—all this religion—appeals to us in favor of the addition of Texas to our Union.

Document H

Source: John C. Calhoun, address to Congress on Mexico, 1848.

We are anxious to force free government on all; and I see that it has been urged in a very respectable quarter, that it is the mission of this country to spread civil and religious liberty over all the world, and especially over this continent. It is a great mistake. None but people advanced to a very high state of moral and intellectual improvement are capable, in a civilized state, of maintaining free government; and amongst those who are so purified, very few, indeed, have had the good fortune of forming a constitution capable of endurance.

Document I

Source: Henry David Thoreau, Civil Disobedience, 1849.

The government itself, which is only the mode which the people have chosen to execute their will, is equally liable to be abused and perverted before the people can act through it. Witness the present Mexican War, the work of comparatively a few individuals using the standing government as their tool; for, in the outset, the people would not have consented to this measure.

Document J

Source: Ostend Manifesto, 1854.

[If by every law, human and divine, we shall be justified in wresting [Cuba] from Spain if we possess the power; and this upon the very same principle that would justify an individual in tearing down the burning house of his neighbor if there were no other means of preventing the flames from destroying his own home. Under such circumstances we ought neither to count the cost nor regard the odds which Spain might enlist against us.

END OF DOCUMENTS FOR QUESTION 1

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GO ON TO THE NEXT PAGE.
APPENDIX D:

DOCUMENT-BASED QUESTION POST-TEST SCORING GUIDE

AP® UNITED STATES HISTORY
2010 SCORING GUIDELINES (Form B)

Question 1 — Document-Based Question

The issue of territorial expansion sparked considerable debate in the period 1800–1855. Analyze this debate and evaluate the influence of both supporters and opponents of territorial expansion in shaping federal government policy.

Use the documents and your knowledge of the years 1800–1855 in your answer.

The 8–9 Essay
- Articulates a clear, well-constructed thesis that analyzes the debate and evaluates the influence of both supporters and opponents of U.S. territorial expansion in shaping federal government policy between 1800 and 1855.
- Effectively employs a substantial number of documents to analyze the debate and evaluate the influence of supporters and opponents of U.S. territorial expansion in shaping federal government policy between 1800 and 1855.
- Provides substantial, relevant outside information taken from the period 1800 to 1855 to analyze the debate and evaluate the influence of supporters and opponents of U.S. territorial expansion in shaping federal government policy.
- Evaluates the ways in which supporters and opponents of U.S. territorial expansion shaped federal government policy between 1800 and 1855.
- Is well organized and well written.
- May contain minor errors.

The 6–7 Essay
- Contains a thesis, which may be partially developed, analyzing the debate and evaluating the influence of both supporters and opponents of U.S. territorial expansion in shaping federal government policy between 1800 and 1855.
- Satisfactorily employs an ample number of documents to analyze the debate and evaluate the influence of supporters and opponents of U.S. territorial expansion in shaping federal government policy between 1800 and 1855.
- Provides ample, relevant outside information from the period 1800 to 1855 to analyze the debate and evaluate the influence of supporters and opponents of U.S. territorial expansion in shaping federal government policy.
- Addresses the ways in which supporters and opponents of U.S. territorial expansion shaped federal government policy between 1800 and 1855.
- May present an imbalanced treatment of the supporters and opponents of U.S. territorial expansion between 1800 and 1855, or looks only in passing at the ways in which federal government policy on expansion were shaped, or presents an imbalanced treatment of the period involved.
- Has acceptable organization and writing.
- May contain errors that do not seriously detract from the essay.

The 2–4 Essay
- Presents a thesis that may be simplistic, confused or undeveloped in analyzing the debate and evaluating the influence of both supporters and opponents of U.S. territorial expansion in shaping federal government policy between 1800 and 1855, or simply repeats the question.
- Uses few documents concerning the debate and influence of supporters and opponents of U.S. territorial expansion in shaping federal government policy between 1800 and 1855.

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Question 1 — Document-Based Question (continued)

- Includes little or no relevant outside information from the period 1800 to 1855 to analyze the debate and the influence of supporters and opponents of U.S. territorial expansion in shaping federal government policy.
- Has little analysis or does not address the ways in which supporters and opponents of U.S. territorial expansion shaped federal government policy between 1800 and 1855.
- May treat only one part of the question.
- May be poorly organized or poorly written, or both.
- May contain major errors.

The 0–1 Essay
- Lacks a thesis or simply restates the question.
- Refers to few, if any, of the documents or uses them inappropriately.
- Includes no relevant outside information from the period 1800 to 1855.
- Contains no analysis.
- Is poorly organized or poorly written, or both.
- May contain numerous errors, both major and minor.

The 0 Essay
- Is completely off topic or blank.
APPENDIX E:

PROJECT-BASED INTERVENTION

Displacement of Native Americans Early Westward Expansion

Introduction: Unfortunately, ethnic conflict is a part of humanity’s story. The United States is no exception to this fact. This assignment asks you to research the removal of Native Americans from the American West during the Antebellum Era and compare and contrast these events with ethnic conflict in the 21st century. You will research and analyze the stories of two Native American tribes as examples of the sufferings of Native Americans as a whole. You will then select and analyze the events of 21st century conflict and discuss similarities and differences between the contemporary and historical events. Finally, you will propose two solutions to the problem of ethnic conflict based upon your analysis of the research components and collaboration with your classmates.

Tasks: For this assignment you will represent your learning through the creation of a wiki space. Your wiki must consist of the following elements:

1. A home page including the assigned guided question(s) that provide the framework for your research, the names of your group members, and the title of your research.
2. A page that discusses the factors that led to and the impacts of the removal of the two Native American tribes you chose to research. A minimum of three sources must be used in your research and must be cited correctly on the page. This page must also include brief summaries of each tribe’s history as well as a primary source document with accompanying annotated bibliography.
3. A page that discusses the factors that led to and the impacts of the removal of an ethnic group in the 21st century. You must also briefly analyze the video’s content. A minimum of two sources must be used in your research and must be cited correctly on the page. This page must also include an embedded video clip that discusses your conflict.
4. A page containing a mind map that demonstrates your understanding of the similarities and differences of each event.
5. A reflection page that briefly summarizes your research and proposes at least two solutions to modern ethnic conflict.
6. Visit the wiki spaces of at least two of your classmates and post a reaction to their collective work on their home page.

Resources: Laptops, Internet, research databases, classroom notes and texts, and the following websites:

- www.scdiscus.org
- www.youtube.com
- www.wikispaces.com
- www.globalissues.org

Process:

- Begin by researching the removal of two Native American tribes from Western lands during the Antebellum period. Ask yourself the following questions as you research:
  - What social factors led to conflict with Native Americans?
What economic or political factors led to conflict with Native Americans?
What impacts did removal of Native populations have on these tribes?

- Analyze a primary source document related to one of the tribes you chose to research. As you analyze the document, ask yourself the following questions:
  - What main points does the author make in the text?
  - Does bias exist in the text and if so what examples demonstrate bias?

- Research an example of ethnic conflict in the 21st century. As you research, ask yourself the following questions:
  - What is the source of the conflict?
  - What form has the conflict taken? (violence, discrimination, etc.)
  - What groups are involved in the conflict and how have they been impacted?

- Select a video clip and embed the clip to your wiki space. As you select and write your analysis of the clip, ask yourself the following questions:
  - What main points about the conflict does the video clip discuss?
  - What images or audio from the video clip impacted you and why?

- Create a mind map that compares and contrasts the stories of the Native Americans and the 21st century conflict that you have researched.

- React to the research and products of at least two classmates. As you react ask yourself the following questions:
  - What key points does the research reveal about Native American removal and contemporary conflict?
  - What solutions are presented and do you agree/disagree with these proposals?
  - What did you find the most intriguing about your classmate’s wiki?

- Create a reflection page that summarizes your research and proposes two solutions based upon trends your research revealed.

Guidance and Scaffolding: Guidance and scaffolding exists throughout the project in the form of the specific guided questions embedded within the assignment as well as assistance specific content and technological questions.

Cooperative/Collaborative Learning: Collaborate with your classmates by reading and responding to their wiki spaces.

Reflection: Briefly summarize and explain your proposed solutions to ethnic conflict issues based upon your own research and collaboration with your classmates.
APPENDIX F:
INTEGRATED PERFORMANCE ASSESSMENT RUBRIC

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<th>Meets Expectations</th>
<th>Does Not Meet Expectations</th>
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<td>Minimal</td>
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<td>Summarizes all required citations and creates defined thematic sections</td>
<td>Summarizes most required citations and creates defined thematic sections</td>
<td>Summarizes some required citations and creates defined thematic sections</td>
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<td>Completes all sections of the graphic organizer with clear and convincing evidence</td>
<td>Completes most of the sections of the graphic organizer with clear and convincing evidence</td>
<td>Completes some of the sections of the graphic organizer with limited evidence</td>
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<td>Digital product contains most of the required elements</td>
<td>Digital product contains some of the required elements</td>
</tr>
<tr>
<td>Problem Evaluation</td>
<td>Digital product discusses the problem and presents clear and convincing research-based solutions</td>
<td>Digital product discusses the problem and presents generalized solutions</td>
<td>Digital product briefly discusses the problem and presents limited solutions</td>
</tr>
<tr>
<td>Style, Grammar, and Creativity</td>
<td>Digital product is creative and free of grammar and stylistic errors</td>
<td>Digital product is creative and contains minor grammar and stylistic errors</td>
<td>Digital product is creative and contains significant grammar and stylistic errors</td>
</tr>
</tbody>
</table>
APPENDIX G:

INFORMED CONSENT LETTER

Dear Parent and Participant,

My name is Craig E. Cash. I am a doctoral candidate in the Department of Instruction & Education at the University of South Carolina. I am conducting a research study as part of the requirements of my degree in Curriculum and Instruction, and I would like to invite your child to participate.

I am studying the impact of project-based learning on the development of my students’ ability to think critically. If you permit your child to participate in my study, your child will be asked to complete a project during the fall semester. This project poses a problem that students will be asked to solve and will last 1-2 weeks, be based on the content in our curriculum, and require the creation of a unique product with the use of technology such as laptops and software. I will provide your child with the research skills and the technology necessary to solve the project’s problem. As part of the study, your child will also complete two tests. The first test will be given at the beginning of the semester and the second test at the end of the study to measure your child’s critical thinking skills before and after the project unit.

Participation in this study is completely confidential. Study information will be kept in a secure location on a password protected portable laptop and a password protected network storage system. The results of the study may be published or presented at professional meetings, but your child’s identity will not be revealed. Participation is anonymous, which means that no one (not even the research team) will know your child’s name or answers. Your child will not be required to write their name on any of the research materials.

Please sign the permission slip below to give your child permission to participate in this project-based problem solving unit. Participation, non-participation or withdrawal will not affect your child’s grade in my class in any way.

You may contact me (864-582-4347 and crecash@email.sc.edu) or my faculty advisor, Dr. Kenneth Vogler, Ed.D, (803-777-3094 and kvogler@mailbox.sc.edu) if you have study related questions or problems. If you have any questions about your child’s rights as a research participant, you may contact the Office of Research Compliance at the University of South Carolina at 803-777-7095. If you do not wish for your child to participate please sign the statement below and return the form to me.

I do not wish my child to participate in the above mentioned study:

Parent signature________________________________________

With kind regards,

Craig E. Cash
512 Carriage Gate Drive
Wellford, SC
864-582-4347
crecash@email.sc.edu