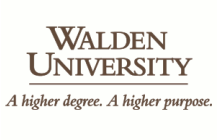

2018

Traditional Versus Nontraditional Instructional and Assessment Differences in 8th-Grade History-Social Science Achievement

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This is to certify that the doctoral study by

John David Landers

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

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Walden University
2018

Abstract

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by

John David Landers

MEd, Azusa Pacific University, 1995

BA, Azusa Pacific University, 1986

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Education

Walden University

April 2018

Abstract

In southern California school districts, 8th grade students in history-social science (H-SS) classes did not perform well on the California Standards Test (CST). To improve student performance, middle school H-SS teachers in some districts received staff development in the use of authentic assessment, the understanding and application of multiple intelligences theory, and the application of a student centered focus in lesson design and instruction. The purpose of this comparative pretest/posttest study was to determine if there was significant achievement difference between 2 8th-grade U.S. H-SS classes taught in 2 districts. The research question addressed a significant difference in CST H-SS achievement scores between 8th-grade students taught using multiple intelligences strategies and authentic assessments (n = 28) and those who were taught using traditional strategies and curriculum assessments (n = 31). The theoretical foundation for this study was constructivism. Post-data from archived student scores on the CST H-SS test were collected and analyzed using an analysis of covariance (ANCOVA), controlling for varying differences in CST pre-test H-SS scores. There was a statistically significant difference in posttest CST H-SS scores between the 2 groups (F = 10.491, p < .002), with the nontraditional group scoring higher. Based on the findings, it is recommended that district leaders provide professional development opportunities for teachers in nontraditional constructivist instructional strategies that support student-centered instruction. These endeavors may lead to positive social change if H-SS teachers change instruction and assessment methods to improve student achievement, thus, meeting graduation requirements and enhancing citizenship development.

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Dedication

I would like to dedicate this study to my family for all of their sacrifice of time and energy and the separations that go along with a doctoral program. I would especially like to dedicate this to my mother who began this journey with me but will not share with us in its conclusion and celebration.

Acknowledgments

No doctoral program is completed in isolation. I must thank my wife who has spent many hours proofreading papers, listening to frustrations, and celebrating successes. I need to thank my son who has put up with time away from Dad when we could have been playing with trains, hiking, or playing catch. I hope that he is proud of his dad's accomplishment.

I also need to thank friends and colleagues who helped with statistics, listened to concepts and ideas, and helped with the actual study. This has been a group effort. Thanks.

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Section 1: Introduction to the Study

Introduction

In teaching history-social science in the K-12 classroom, the common framework for teacher-created lessons and assessments is the use of content-centered curriculum based on state standards. This instructional approach embodies the philosophy that sharing the curriculum is the teacher's classroom priority, because the content itself takes precedence over other factors such as student content mastery, progress, or the actual learning process. In these *traditional* classrooms, teaching and learning are separate, not integrated, activities. In content-centered classrooms, students are evaluated by standardized methods and their achievement is judged based on their performance. Traditional instruction that prioritizes the strict discipline of content focus and routine required by the academic discipline is commonly found in the K-12 history-social science classroom (Kilgo, Sheets, & Pascarella, 2014; Standford & Parkay, 2010).

In California schools, content standards were adopted for each discipline, and standardized tests are administered annually to measure students' progress in each of the content standards (California Department of Education [CDE], 2012). These standards and examinations are in place for history and social science courses. These standardized tests require districts to show instructional compliance with state standards and to have an aligned curriculum so that students are academically prepared in the content area. The implication is that these standardized tests and the curriculum focus will support student success and provide evidence of teacher proficiency. This assumption also creates an

expectation that student test performance is accurately tied to student success, content mastery, and teacher performance (CDE, 2012; Malik, 2016; Wiggins, 2010).

Because of the state emphasis on content and high-stakes testing as a method of evaluating both student achievement and teacher proficiency, many administrators, overtly or covertly, have encouraged teachers to teach to the test and perpetuate the use of traditional, content-centered curriculum in the classroom. As stakeholders sought to improve student achievement and to eliminate instructional issues that may have negatively impacted achievement, many California administrators accepted step-by-step curricula designs, "'canned' curriculums" from a content-centered philosophy that could "be duplicated and handed out in sequence" (Haskvitz, 2008, p. 1). In consequence, administrators may have falsely assumed that standardized test results truly reflect student achievement. According to Gunzelmann (2005), "Educators are forced to rely more and more on solely quantitative methods and may have been deceived into believing that numbers tell the whole story" (p. 214). With this perspective, however, the students' needs and learning processes are secondary to the curriculum, if considered at all (Popham, 2008). Even though standards, according to Phillips (2009), are "only the beginning" (p. 28) point for the assessment of teachers and students, in many cases, assessing student learning is limited to standardized tests and may not truly represent what students may know about the content area. More important, standards-based assessments may not measure how students understand what they have learned.

Even with the emphasis on standards and testing, however, southern California districts are not meeting the student achievement benchmarks in history and social

science. The April 2012 assessment data for the local county of the participating schools indicated that on the five possible performance levels of the California Content Standards Test (CST) for history-social science (also known as the Standards Testing and Reporting [STAR] test), more than 60% of the middle school students scored in the basic, below basic, or far below basic levels. That same year, 60% of tenth graders and 55% of eleventh graders scored either basic, below basic, or far below basic, according to the CDE (2012). Based on these results, the majority of students in California are not meeting state standards in history-social science as measured by the CST. However, it is not clear whether these CST results accurately reflect students' knowledge.

To meet state standards and demonstrate student progress in a climate of standardized and benchmark testing, administrators and teachers in some districts are exploring philosophical options that include more than quantitative or standardized assessments. To gain a more complete picture of students' knowledge and academic growth, the administrators and teachers of a local California district restructured their history-social science classes and chose to create child-centered rather than content-centered classes that were more constructivist in nature than standards driven. The teachers of these classes have content standards as scaffolding, but students demonstrate their mastery of these standards through more than standardized or traditional exams alone. Students in these nontraditional classrooms are project oriented and may learn content from one subject that is integrated with another course (CDE, 2014). They learn to collaborate, experience, and structure meaning firsthand. Their participation in activities, presentations, and other forms of authentic assessment replaces a reliance on

rote test scores and reflects mastery of both the content and other life skills. This shift from content-centered to learner-centered curriculum embodies the philosophy that a student must not only *know* information to be a productive citizen, but he or she must also be able to *do something with* the information (CDE, 2014). The use of authentic assessments, activities that require the demonstration and application of knowledge that are usually scored with a rubric, is, therefore, a nontraditional alternative to traditional testing: standardized exams that use multiple-choice, true/false, or short-answer items to evaluate content mastery (Stover, Yearta, & Harris, 2015). The teachers in these nontraditional classrooms have been trained in nontraditional instructional methods and provide creative learning opportunities for students to demonstrate their knowledge of history and social science. These teachers view themselves to be more learning facilitators rather than knowledge experts, and they choose the specific application of learning theories and authentic assessments based on their philosophical underpinnings. There are no quantitative comparisons, however, between the California districts that are using the nontraditional versus traditional approaches to improve student achievement in history-social science.

Therefore, in this study, I compared the state history-social science test scores for eighth graders in two southern California districts: one that approaches history instruction from a nontraditional approach and another that uses a traditional approach. By statistically controlling for differences between groups that could affect student outcomes, my findings provide insight into effective approaches to improving students' history-social science achievement in California. In Section 2, I present and discuss the

factors that contributed to the nontraditional and traditional philosophies, as well as teaching and assessment methods that are appropriate and/or accepted in each perspective. I also present additional literature on student achievement, student achievement in history-social science, and other relevant topics in Section 2.

Problem Statement

Students in California classrooms are failing to demonstrate adequate content knowledge and understanding in history-social science as measured by the CST/STAR. This standardized exam is administered in the eighth grade to measure students' mastery of sixth-grade through eighth-grade history-social science content. It covers the framing of the U.S. Constitution with an emphasis on the United States' democratic institutions. On the exam, students are expected to trace the development of U.S. politics, society, culture, and economy; identify the causes, course, and consequences of the Civil War; and make connections between the rise of the industrialization of the country and the growth of cities (CDE, 2012, pp. 33-40). This problem affects all the local stakeholders, including administrators seeking school compliance with state standards, teachers who are evaluated by student progress and achievement, and students seeking competency in history-social science for the development of citizenship as well as matriculation through the school system. Many factors exist at the national and local levels that contribute to this problem: the philosophical approach to learning, specific instructional methods or strategies, assessment methods, and administrators' and teachers' perspectives on interpreting assessment results (Lombardi, 2008; Tomlinson, 2015). Currently, most California school districts are addressing the student history-social science achievement

deficits with traditional content-centered teaching philosophies. However, at least one district is encouraging history-social science achievement with a nontraditional, student-centered philosophy that views the learning/achieving process differently.

In this study, I addressed the student achievement problem by determining whether eighth-grade history-social science students in a nontraditional, student-centered classroom demonstrated higher test scores as measured by state history-social science exams than did history-social science students in a traditional, content-centered classroom. I compared the student achievement in classes where instruction was based on the nontraditional versus traditional teaching and learning philosophies to provide empirically based findings to add to the gap in research. This study contributes to the body of knowledge about student achievement in history-social science by investigating whether the instruction based on the nontraditional or the traditional philosophy is more effective for bolstering history-social science achievement scores in this local venue. The results may provide local stakeholders a greater understanding of the influence that instructional approach has on student achievement, creating an opportunity for stakeholder conversation and collaboration to facilitate student achievement in history-social science.

Nature of the Study

In this comparative, pretest/posttest study, I compared the student history-social science achievement in two eighth-grade U.S. history classes. Class A was a nontraditional class in which students were taught from a student-centered philosophy that involved creative instructional strategies and authentic assessment measures; Class B

was a traditional class in which students were taught from a content-centered philosophy that involved traditional instructional strategies and conventional testing methods. The teacher of Class A, also referred to as Teacher A, completed staff development trainings in the use of authentic assessment in history, the understanding and application of multiple intelligences (MI) theory with middle school students, and the application of a student-centered focus in lesson design and instruction. Teacher A additionally completed the standard district training in implementing state standards and district benchmarks. The teacher of Class B, also referred to as Teacher B, also completed district training in implementing state standards and district benchmark exams. Teacher B did not, however, attend or complete any additional training on the (a) use of authentic assessment in history, (b) understanding and application of MI theory with middle school students, or (c) application of a student-centered focus in lesson design and instruction. In this quantitative study, I collected student achievement pre- and post-data from archived student scores on the CST history-social science test, also called the STAR test. I then compared and analyzed the student scores with an analysis of covariance (ANCOVA).

Research Questions

I addressed the following research question/hypothesis:

RQ1: Is there a significant difference in California history-social science achievement scores between eighth-grade students who were taught using multiple intelligences strategies and authentic assessments and those who were taught using traditional strategies and curriculum assessments?

***H*o1**: There is no significant difference in California history-social science achievement scores between eighth-grade students who were taught using multiple intelligences strategies and authentic assessments and those who were taught using traditional strategies and curriculum assessments.

***H*a2**: There is a significant difference in California history-social science achievement scores between eighth-grade students who were taught using multiple intelligences strategies and authentic assessments and those who were taught using traditional strategies and curriculum assessments.

In this study, I examined the research question by collecting quantitative data—pre and post student achievement scores in history-social science from the CST administered and collected by the local districts in 2011 and 2012. I used the Grade 7 CST total history-social science scores for the individual students in each class were used as the pretest or covariate, and the Grade 8 CST total history-social science scores for the individual students in each class as the posttest for the ANCOVA in this study.

In Section 2, I provide a review of the literature relevant to this problem and research variables, and in Section 3, I detail the research design, justification for the methodology, and a description of the completion of the methods portion of this study.

Purpose of the Study

I conducted this study to determine the differences in achievement, if any, of students in eighth-grade history-social science courses that were taught using nontraditional and traditional approaches. Through this study, I provide empirical data to show the differences in history-social science student achievement between the students

in Class A (nontraditional) and Class B (traditional), data that can be used to add new information to the existing gap in research on student achievement related to teaching and learning philosophies.

Theoretical Framework

Constructivism: History and Connection to the Classroom

The theoretical foundation for this study is found within the ideology of constructivism. A teacher who adopts the constructivist theory shifts from being the expert who delivers the content or knowledge to a facilitator of learning for students who are more centrally involved and who participate in creating experiences with the content knowledge. Students and teachers are active in the learning process, and students must take responsibility to learn and apply what they have learned to their lives (Andrew, 2007; Scott, 2010).

Students in a constructivist classroom use inquiry methods to solve problems, ask questions, and investigate a topic; and they use a variety of resources to find solutions and answers. As students explore the topic, they draw conclusions; and as they advance further into the content, they revisit previous conclusions. The students ask questions, and those questions lead to more questions. These student behaviors reflect the constructivist processes of learning that result in a student-centered, rather than teacher- or content-centered, form of instruction (Brown, 2016; Standford & Parkay, 2010).

Learner's Constructivist Lens

In a student-centered curriculum, students are given opportunities to develop their cognitive processes to solve problems. Students construct their understanding of the

content material, and teachers facilitate the development of this understanding by guiding and supporting student inquiry and exploration. For example, in a research project, students may seek answers to questions by researching historical documents. They hypothesize and revise their answers based on the evidence found in their research. By exploring, testing, and altering their answers in the research process, they assimilate the knowledge and learn from classroom experiences with their peers. In contrast, students in a content-centered curriculum receive information that is transmitted only by the teacher (Standford & Parkay, 2010).

Instructors who model the constructivist paradigm guide learners to control their learning. Constructivist teachers assess student learning in the context of daily classroom investigations, not as separate events. Students in their classes demonstrate their knowledge every day in a variety of ways. Constructivist teachers structure lessons around essential ideas, not bits of information (Carroll, Wu, Shih, & Zheng, 2015). Students in their classes are exposed to a Big Picture problem and are then guided to sort through the problem's details. As students identify the relevant parts of a problem, they develop critical thinking skills, refine their understanding, and apply what they are learning (Draper, 2002).

The Teacher's Constructivist Lens

Teachers who embrace a constructivist teaching and learning philosophy know that learning is an active process. They reject the notion that learners are passive recipients of information. Effective instruction and learning include methods and strategies that are developmentally appropriate to meet students' diverse learning needs

(Andrew, 2007; Standford & Parkay, 2010). Scott (2010) stressed that when teachers center their lessons on the students' needs, learning is optimized for the whole class.

In a classroom guided by constructivism, the teacher employs different instructional strategies that lead the students into discovery and learning. Curriculum emphasizes fundamental concepts, beginning with the whole and expanding to include the parts. This perspective of teaching and learning includes having students solve real-world problems and then make the connections to the concepts under study.

Learning in a constructivist class also requires collaboration among students. Students learn not only from themselves but also from their peers. When students interact with one another and reflect on their learning, they actively engage with the content knowledge (Krahenbuhl, 2016), and they also have opportunities to share learning strategies and methods. Teachers who plan instructional opportunities that require student interaction and collaboration facilitate higher order learning strategies on Bloom's taxonomy. This interaction guides both teacher and students in a collaborative discovery process that promotes student critical thinking. In contrast, traditional, direct teaching, guided by a predetermined scope and sequence of content, may not promote student collaboration to the same extent as instruction from a nontraditional paradigm (Alt, 2012; Nuthall, 2002).

Integrating Constructivist Instructional and Assessment Methods

Gordon (2009) viewed constructivism as a model for explaining how knowledge is produced and as a way of explaining how students learn. Constructivism can be viewed as an educational learning theory that has the potential to create an educational

experience wherein learning is more about understanding and applying concepts, constructing meaning, and critically thinking about ideas rather than regurgitating them (Brown, 2012; Shively, 2015). A constructivist approach focuses on the students' opinions on issues and ideas and at the same time has the students challenge their assumptions and ideas. The constructivist teacher focuses on the whole learning experience of the students rather than on only what can be measured by a paper-and-pencil test (Crotty, 2012).

In a history-social science class, a teacher who uses a constructivist approach would likely include primary sources and require students to read about events in the time period being studied. A teacher in such a class would also have students work in small groups to create projects that reflect what they have learned. The teacher would be involved in facilitating discussions and guiding students to develop their own conclusions on the subject.

Assessment. The differences between a teacher who uses traditional assessment methods and one who follows a constructivist, nontraditional approach, are readily apparent. Traditional assessment predominantly measures through testing alone. Such tests are designed with true/false, matching, multiple choice, short answer, or essay questions and tend to have defined, "correct" answers. A constructivist approach to assessment does not follow this model but instead has students apply concepts and critically think about ideas (Brown, 2012; Shively, 2015). Nontraditional assessments include student projects; group work; teacher observations of student participation, contributions, and interactions; and some traditional formative or summative tests.

Gallavan and Kottler (2009) presented two types of rubrics to demonstrate the types of assessments used in a nontraditional method. One rubric focused on the overview of concepts related to the learning, and the other gave specific outcomes for that assignment. Each rubric clearly defined the levels of cognition and critical thinking measured so that students knew the expectations and standards that they would need to show in their final product of the assessment which comprised student-created projects that included virtual field-trip guides, essays, illustrated timelines, photographic essays, posters, and websites.

Multiple Intelligences Awareness

Gardner developed MI theory to give educators a way to think about the types of learning that students encounter in the classroom. Moran, Kornhaber, and Gardner (2006) stated that the ranges of intelligences found in MI build on students' own learning intelligences and give those students a way to show what they have learned. Viens (2005) gave three goals a teacher should focus on when implementing lessons based on MI: (a) creating opportunities that use a range of intelligences, allowing students to interact in the learning process by using content knowledge, (b) giving students opportunities to engage in learning activities in areas of their own strengths and to demonstrate what they have learned, (c) creating a more individualized education that directly addresses students' individual learning abilities.

Fierros (2004) pointed out that the MI are indicators of problem-solving capabilities. Teachers who encouraging students to use all the intelligences to solve a problem (e.g., reading about it, analyzing it, drawing it, acting it out, working to a

rhythm, relating it to nature, talking about it, or reflecting on it) provide a learning experience that may empower and propel students in the learning process. When teachers allow students to use multiple ways to address or solve a problem, all students benefit, particularly when problems are complex and require innovative thinking.

Noble (2004) stated that Gardner's theory of MI requires a teacher's instructional strategies to be focused on the students' individual needs. It is, therefore, important for the classroom teacher to understand how students learn so that lessons can be adapted to meet those needs. Teachers who study MI theory have the opportunity to develop an understanding that each student learns in different ways and to create lessons that will actively engage all students in the learning process.

When teachers implement both a constructivist model of instruction and multiple intelligences in lesson design and assessment, they can foster a more independent and flexible student-centered learning environment (Ali & Rajalakshmi, 2016; Fierros, 2004; Noble, 2004). Further, teachers who use both the constructivist and MI models may provide better opportunities for students to succeed and meet standards. Achkovska-Leshkovska and Spaseva (2016) stated that Dewey and Gardner designed theories that initiated educational reforms in the school system. Both theories proposed student-centered learning and a move away from a teacher-centered approach. The teacher's role in the concepts of both Dewey and Gardner is to link students' personal experiences to the material being studied and to life in general. Achkovska-Leshkovska and Spaseva (2016) asserted that the educational implications of Gardner's theory can be considered as a continuation of Dewey's progressive vision of classroom teaching and school

organization. The researchers further argued that Dewey and Gardner shared the same need for educational reform, with both claiming that the established teaching methods found during their times did not benefit the students.

Summary

Constructivism explains why the blend of instructional strategies based on MI theory and the processes of authentic assessment fit together so well. The use of instructional and assessment methods within a constructivist paradigm and the use of authentic assessment and an awareness of MI theory may work together to enhance the student-centered learning experience.

Operational Definitions

I use the following key terms in this study, and they are defined below to provide clarification as needed.

Authentic assessment. An approach to assessing students' learning that requires students to solve problems or work on tasks that approximate as much as possible those they will encounter beyond the classroom (Standford & Parkay, 2010).

Multiple intelligences theory. Gardner (2006) defined the nine areas of MI theory as follows:

- *Bodily kinesthetic*: Ability to coordinate physical movement.
- *Existential*: Ability to contemplate phenomena or questions beyond sensory data, such as the infinite and infinitesimal.
- *Interpersonal*: Ability to understand and interact well with other people.

- *Intrapersonal*: Ability to understand and use one's thoughts, feelings, preferences, and interests.
- *Linguistic*: Ability to understand and use spoken and written communication.
- *Logical-mathematical*: Ability to understand and use logic and numerical symbols and operations.
- *Musical*: Ability to understand and use such concepts as rhythm, pitch, melody, and harmony.
- *Naturalistic*: Ability to distinguish and categorize objects or phenomena in nature.
- *Spatial*: Ability to orient and manipulate three-dimensional space. (p. 23)

Nontraditional classroom instruction. Nontraditional teaching methods are commonly known as innovative/modern teaching methods and are generally learner self-directed and interactive in nature. Nontraditional strategies include collaborative and problem-based learning, cooperative learning, group discussion, and project-based learning (Harris & Johnson, n.d.; Parasuram, Wang, Joon, Poh, & Xie, 2014).

Standards-based education. Basing curricula, teaching, and assessment of student learning on rigorous academic standards (Standford & Parkay, 2010).

Student-centered curriculum. Curricula that are organized around students' needs and interests (Standford & Parkay, 2010).

Traditional classroom instruction. Traditional teaching concerned with the teacher being in control of the learning environment and being the *cause* of classroom learning (Novak, 2010). Learning is chiefly associated within the classroom and is often

competitive (Blumberg, 2015). The lesson's content and delivery are the most important factors, and students master knowledge through drill and practice (such as rote learning). Content need not be learned in context, nor do forms of assessment need to be authentic (Ebert, Ebert, & Bentley, 2014; Johnson & Johnson, 1991).

Assumptions

The following assumptions informed the study and its focus. The first assumption was that the students in Class A were exposed to lessons that were presented using nontraditional classroom instructional approaches, those designed with Gardner's MI theory as a guide, and which also included authentic assessment as part of the overall assessment plan. A second assumption was that the students in Class B were exposed to lessons that were presented using traditional classroom instructional approaches and assessment processes such as curriculum-based tests. The third assumption was that the student scores on the state achievement exam were reflective of their respective student achievement no matter which instructional approaches were used. Finally, I assumed that both classroom teachers had previous knowledge and experience in developing middle school history-social science content lessons following state-adopted content standards.

Limitations

This study was limited in its scope by the sample—only two K-12 school districts in suburban southern California were represented by the data set. This study's findings, therefore, are not generalizable to a larger population but reflect the situation in this local area. There could also be other confounding variables not considered, such as students transferring from different districts. Furthermore, research cited in this study reflected

only large district-wide studies and not the individual teachers and classrooms as this study did.

The teacher of Class A was a nontraditional teacher who created an environment in which students learned within a student-centered philosophy that involved creative instructional strategies and authentic assessment measures. This method of instruction prepared the students to think creatively and approach problems from multiple directions to evaluate and solve those problems.

The teacher of Class B was a traditional teacher who created an environment in which students learned within a content-centered philosophy that involved traditional instructional strategies and conventional testing methods. Students were not intentionally taught to think outside the bounds of the curriculum and were only allowed to give limited answers on tests. This process may not have prepared them to think creatively or use different perspectives to answer questions or solve problems when compared to the students in Class A.

Although there are limits on the generalizability of these findings, the significant difference found in student performance that was attributed to instructional approach indicates that the integration of constructivist, nontraditional teaching and learning strategies supports improved student outcomes.

Scope and Delimitations

The scope of this study was two middle school history-social science classes in southern California. This study was delimited to the two eighth-grade history-social science classrooms under examination—one taught with a nontraditional instructional

approach and another with a traditional instructional approach. CST/STAR test for the spring of the 2010/2011 and 2011/2012 school years from the identified teachers was used for the pre/posttest. Specifically, the seventh-grade test results were used for the pretest (Spring 2011) and the eighth-grade test results were used for the posttest (Spring 2012).

Significance of the Study

Application to the Local Problem

This quantitative study is significant because it provides empirical evidence related to the student achievement in history-social science between students from nontraditional and traditional teaching and learning paradigms. I analyzed data from this study to determine any statistical differences.

Silver, Strong, and Perini (2000) and Scott (2010) stated that for students to begin to show an improvement in their understanding of history and content, lesson design and implementation must reflect an understanding of how individual students learn. Silver et al. (1997, 2000) also discussed how learning styles and MI combined gave teachers a better understanding of how students learned, how to address student achievement, and how to build a strong foundation for instructional strategies and lessons.

The findings of this study have been shared with the local stakeholders so that appropriate development or application of teaching and learning philosophies may be applied to address the student achievement deficit in California history-social science content exams. By being able to understand how better to design lessons for students, teachers may meet the individual needs of the students and better prepare them to succeed

and become active participants with more self-confidence to meet the challenges of learning and to understand the history-social science content they are covering.

Application to the Profession

To foster a broad understanding of student learning and development, teachers and educators are examining how students learn and how content is presented in lessons. In 2003, Stein asserted that federal and state lawmakers had begun to discuss ways to improve teacher training in history and to improve the methods by which teachers should present history to students, arguing for a holistic approach. Stein (2003) stated that weak curriculum and poor preparation of many teachers are a cause for students being unable or unwilling to learn history. Teachers need to look at other ways of engaging students in the learning of history.

Authentic forms of assessment also seem to give teachers the ability to track what students have learned and allow the students to show what they know. As Gardner (2006) stated, “Rich experiences also provide diagnostic information. Teachers can observe student performances to find root causes of misunderstandings and to figure out how students can achieve superior understandings” (p. 216). With the gradual emphasis on creative teaching methods and approaches in contemporary classrooms, many educators and teachers adopted the MI approach in the teaching styles where it highlights the idea of individual differences for both teachers and students (Sulaiman, Ahdurahman, & Rahim, 2010).

Impact on Social Change

In this quantitative study, I compared the effect of nontraditional versus traditional instruction and assessment on student achievement in history-social science as evidenced by any difference in mean scores on the state's history-social science test. The findings from this study benefit stakeholders by identifying factors that may enhance or promote student achievement. The integration of nontraditional instructional methods empowers students in developing leadership and critical thinking strategies, while also fostering individualized learning and promoting student achievement. A positive by-product of these efforts could be improvement in history-social science student achievement and better self-awareness of the learning process for students and stakeholders alike. These efforts could improve the local learning environment and develop relationships among students, faculty, administrators, and parents.

Summary

The problem in history education, according to Wiggins (2010), is the overreliance on standardized tests to determine what students understand, coupled with a limited focus on student learning processes (Dietel, 2011). Although the focus has been on preparing students to succeed on state standardized tests, teachers in California must not only prepare students for the tests but also engage them in successful learning and critical thinking processes that will properly prepare them for the tests. Comparing the student achievement of students taught from nontraditional and traditional instructional paradigms reveals differences that could benefit the local stakeholders, the teaching profession, and the broader society.

Nontraditional instructional strategies, represented in this study by the application of the principles of Gardner's MI theory and the use of authentic assessment in classroom instruction, have been embraced by many educators and schools. These methods may also contribute to a learning environment that fosters student-focused learning, giving students more ways to demonstrate knowledge and enabling educators to have a variety of methods to measure student achievement (Viens, 2005).

In Section 2, I describe authentic assessment and how it has been viewed by educators and implemented in the classroom, as well as MI theory and what effect it has had on how teachers and schools view and understand how students learn. This effect is demonstrated in the instructional strategies teachers have learned to use in their classrooms that apply MI theory and follow the model of constructivism.

I lay out the details of the methodology in Section 3. I discuss the results from this study, which examined student achievement in two classrooms using two different teaching methods, in Section 4. I provide recommendations to support further study, and the interpretation of the results, in Section 5.

Section 2: Literature Review

Introduction

In this comparative study, I compared the achievement differences in two eighth-grade history-social science courses that were taught using nontraditional and traditional instructional and assessment strategies. Therefore, I organized and constructed the literature review from factors that affect student achievement. I also focused on nontraditional and traditional instructional strategies as well as their influence on student achievement. I searched the literature exhaustively and present findings that demonstrate the usefulness of these different classroom approaches regarding achievement and the development of student-centered classrooms. Furthermore, to clearly describe the means by which educators most often determine student achievement, I include a focus on nontraditional and traditional instructional approaches such as those using MI theory, as well as differing methods of assessment and their purported effectiveness.

Based on the literature review, few researchers combined the two elements of MI theory and authentic assessment in their studies and none specifically compared student achievement in history of pupils taught from nontraditional and traditional instructional paradigms. However, I thoroughly examined factors related to student achievement, the history-social science content area, and nontraditional and traditional instructional strategies.

Description of the Literature Search

I chose the databases that I used in developing this literature review because they focused on the field of social science research and educational issues and topics. They

included Education Full Text, Educational Resources Information Center (ERIC), Academic Search Premier, Teacher Reference Center, and a World Wide Web search engine (Google Scholar). I also gathered research from the library at Azusa Pacific University in southern California.

For most of the databases that I used, I used combinations of keywords *multiple intelligences*, *authentic assessment*, *assessment*, *standards-based assessment*, *traditional instruction*, *nontraditional instruction*, *constructivist teaching*, *constructivism*, *middle school*, *student-centered classroom*, *student achievement*, and *history-social science*. I searched for these keywords in the title, abstracts, or descriptors of books and periodicals. I used Boolean operators to further narrow the search results on these topics. I also used other keyword descriptors used in the literature search such as *cognitive style*, *intelligence*, *history lesson*, and *learning styles*. I then coupled many of these keywords with terms describing educational delivery systems such as *curriculum and instruction* and *curriculum*.

I selected literature from both peer-reviewed journals as well as non-peer-reviewed journals to give a broad view of the topic and how the educational and academic community understands it. I chose the various studies in the review to give both a historical and a current understanding of the information available on authentic assessment and MI theory. The studies ranged in scope from longitudinal studies that included whole districts to examinations of local school adoptions that took place from 1990 through 2014 in different demographic and socioeconomic areas. Studies that

focused on individual classrooms and teachers were limited, but the few studies that I provided the basis for this study's comparative research design.

Related Research and Literature

To accomplish the purpose of this research study, determining the achievement differences in eighth-grade history-social science courses that were taught using nontraditional and traditional strategies, I examined the variables and influencing factors of the research question as in the literature. In this review, I provide specific information on student achievement, the dependent variable in the proposed study, and research on nontraditional and traditional methods that create student-centered classrooms, the grouping variable for the classes/students reflected in this study. I additionally highlighted the methodology of the provided studies as they formed the basis for this study.

Current Assessment in History

Standards-based assessment has an outcome- or performance-based philosophy, according to Standford and Parkay (2010). This practice comes from the standards reform movement that put a higher standard on students' learning and performance (Berg, 2006). The National Staff Development Council stated, "Critically, all states and many districts have begun creating standards for student learning, curriculum frameworks to guide instruction, and assessments to test students' knowledge" (as cited in Standford & Parkay, 2010, p. 47). Curriculum was aligned to the higher standard, putting more emphasis on the content to be learned at every grade level. Assessments were then developed to measure what students had learned and were able to do.

Assessment in standards-based schools is built around benchmarks and standardized tests to show student progress and encourage school accountability. Classroom evaluation is a crucial part of the teaching and learning process as it is used to measure and improve student learning as well as the quality of classroom instruction (Merritt, 2013). Accountability occurs when a system exists that gives specific information on what is expected of students and provides the assessment data that shows what the individual students have learned and understand. Wei, Darling-Hammond, and Adamson (2010) and Luft, Brown, and Sutherin (2007) understood standards as the way schools articulate the expectations of what students are to learn and master and the standardized test as the means to provide accountability by showing whether the students have met those standards. The No Child Left Behind Act (NCLB) of 2001 and the demand for high expectations for schools drive the instruction. Standards-based instruction and assessments have become the norm with schools, and the public generally depends on the use of test scores to show a school's success or lack of progress (Scogin, Kruger, Jekkals, & Steinfeldt, 2017; Standford & Parkay, 2010). Furthermore, Grisham-Brown, Hallam, and Brookshire (2006) indicated a connection between learning and assessment. Therefore, teachers' practice often follows this trend, using performance-based tests to evaluate success or progress.

The difficulty with standards-based instruction and assessment, however, is rooted in the broad, vague nature of the actual standards (Luft, et al., 2007; Patton & Trainor, 2002; Popham, 2008; Scogin, et al., 2017; Wiggins & McTighe, 2008). Standards can have themes and concepts with several potential interpretations, yet those

same standards are what are used when comparing student progress and ensuring school accountability. These vague standards, however, may not be appropriate for guiding instruction and assessment or for determining if a student is learning.

Test scores are being used as the primary means of monitoring students' achievement as a result of the current emphasis on demonstrating student improvement via standardized testing (Scott & Suh, 2015). The assumption is that if a student scores well on the test he/she learned what was required by the standards. Standardized testing does not, however, allow a student to demonstrate what he/she may have learned beyond the scope of the test questions (Severiens, Meeuwisse, & Born, 2014). Due to the overreliance on the test scores, teachers tend to "teach to the test" and use assessments that mimic the format of the standardized test required by the state. This, in turn, stifles creative teaching methods that apply multiple measures of assessment that enable students to provide a more comprehensive view of what they know (Gunzelmann, 2005; Jimenez & Moorhead, 2017; Mora, 2011). Dietel (2011), Goldberg and Roswell (2001), Rakow (2007), and Yeh (2006) drew similar conclusions about standardized testing and its effect on students' learning. In addition, these researchers indicated that even with an intense focus on preparing students for the standardized tests, scores and student comprehension have not met expectations.

With the focus on designing curriculum to meet a set of standards, assessments are designed to measure what facts and information students have learned. This practice has resulted in standardized multiple-choice and short-answer tests. Willis (2007) indicated a weakness in this trend and stated, "Curriculum conformity has emphasized

acquisition of facts without regard to developing students' skills in the processing of information" (p. 34). Showing what the students do *not* know has become more important than showing what they have learned. According to Willis (2007), this is problematic because "If engagement in learning through curiosity, strengths, interests, and prior knowledge is lost from school curriculum, students are at risk for losing their childhood passion for learning" (p. 23). The need, according to Willis (2007), is to add strategies that give the students the ability to become engaged and excited about learning.

Traditional Outcomes Compared to Authentic Learning

In the United States, education has traditionally been viewed as a process of training students to perform specific skills (Draper, 2002; Royal, Hedgpeth, Smith, & Kirk, 2015). A traditional view of learning and instruction is a predictable and long-standing tradition among teachers, students, parents, and educational institutions. Changing the mindset of how educators view assessments has been a challenge in many areas (Naude & Bezuidenhout, 2014). Authentic learning and assessment, which follows a constructivist theory of learning, is different in terms of how students are taught:

> Constructivism requires a significant paradigm shift for teachers, parents, and schools. It calls for teachers to spend less time lecturing, drilling students on basic facts, and rote learning. Instead, students are encouraged to construct their own knowledge through social interaction and meaningful activities. (Lane, 2007, p. 158)

With the emphasis on standards and test scores, the current debate is over how to approach lessons and promote student achievement. Teachers want their students to learn

and demonstrate what they know while maintaining an appreciation for learning. Teachers also want to understand how students learn and process information, and they are trying to link the best practices of teaching to the understanding of learning (Chen & Hong, 2016; Ghazi, Shahzada, Gilani, Shabbir, & Rashid, 2011). When teachers understand how a child learns and the various learning abilities represented in a classroom setting, they can develop lessons that allow students to demonstrate what they know through creative, nontraditional assessments that traditional paper-and-pencil tests may miss. Trapp (2005) stated that having learners examine and cement new learning through exploring new ways to arrange and categorize material not only actively engages the students but also gives them the opportunity to practice critical thinking and apply what they are learning. Teachers who utilize authentic assessment along with project-based instruction allow students to use the information learned and to actively participate in the learning process instead of just sitting and memorizing facts (Trapp, 2005).

Blumberg (2015), de Oliveira (2008), and Trapp (2005) all examined how teachers prepared and delivered content to students in lessons, along with the assessment methods that were used, to determine what students understood and could show through traditional assessment methods. They found that the traditional methods of content delivery had a negative impact on how the students gained historical background on the subject presented and that the students performed poorly on the standardized tests given. The limited way in which the content of the lessons was delivered in the traditional manner of lecture and worksheets was not an effective way to engage students' abilities. Blumberg (2015) and Trapp (2005) suggested that the use of teaching strategies and

assessments that employ various learning styles and go beyond traditional delivery methods and paper-and-pencil tests would give the teachers a more comprehensive view of what the students are learning.

Traditional assessments that are currently used to gauge student knowledge are limited in that they only provide a narrow view of student recall on test day—they may not accurately reflect what students have learned (Churchill, 2013; Toch, 2011; Wiggins & McTighe, 2008). Toch (2011) asserted that individual states should use standardized multiple-choice and short-essay tests to comply with NCLB to show if the students are learning. Toch (2011) also stressed, however, that this form of testing is not well suited to judge students' ability to express points of view, marshal evidence, and display other advanced skills. Wiggins and McTighe (2008) pointed to a weakness in the testing system that focuses on the students' acquisition of knowledge at the expense of meaning and transfer of that knowledge compared to the focus on performance or authentic measures to show what students understand. A more comprehensive approach to understanding what students are learning is needed, according to Cotterill (2013) and Toch (2011), who argued for advanced thinking skills and performance assessments to give a more complete picture of the students' performance.

Wiggins (2010) stated that most teachers only address the two lower levels of Bloom's taxonomy, knowledge and comprehension, in lessons that follow a traditional classroom approach. This approach leaves students to learn the application, analysis, synthesis, and evaluation levels outside of the lesson and does not promote higher level thinking skills. Further, when students are not given the opportunity to learn how to use

higher level thinking skills, they are underprepared for assessment tests that require such skills (Chua, Tan, & Liu, 2014). Thus, teachers need to employ strategies and assessments that require students to engage the higher levels of Bloom's taxonomy to develop higher level thinking skills (Ediger, 2010).

Authentic Assessment and Learning

When educators develop an authentic learning environment to improve student achievement, three questions must be addressed, according to Avery, Kouneski, and Odendahl (2001), to successfully accomplish this task:

1. Are students encouraged to construct knowledge that fosters higher order thinking?
2. Do they engage in inquiry and communication that use concepts and ideas from the scholarly disciplines?
3. And are connections made to issues and concerns beyond the classroom? (p. 98)

If teachers address these questions as they are designing lessons, they can then also design authentic assessments that allow students to better show what they are learning and understanding (Avery et al., 2001; Gatlin & Edwards, 2007; Levinson, 2009). To improve the quality of social studies and history instruction, Levinson (2009) and Cronise (2016) concluded that curriculum must have the flexibility to allow teachers to use real-world scenarios to teach civics and history, better preparing students to think and helping them to learn and apply a broad range of knowledge, developing skills that prepare them for life outside of the classroom. Nontraditional instructional strategies and authentic

assessments provide for such flexibility. However, curriculum that relies on lectures, worksheets, and multiple-choice and short-answer tests does not have the flexibility necessary to prepare students to master those real-world skills (Aslan & Reigeluth, 2016a; Cubukcu, 2015).

The use of nontraditional teaching strategies and authentic assessments such as student-based projects and portfolios to supplement standardized testing also allows teachers to become more student centered in their approaches in the classroom (Ediger, 2010; Joseph, 2008; Litchfield & Dempsey, 2015). Teachers of student-centered classrooms include students in the planning and implementation of instructional activities and assessments. Student-centered instruction embodies the application of a variety of methods that place the student at the center of education (Altay, 2014). Students are given choices and are encouraged to take ownership of their learning. Students who are involved in the decision-making process more deeply engage the content through projects, group work, and research. Further, students who are required to demonstrate their knowledge through authentic assessment must use a wide variety of thinking skills to demonstrate what they have learned.

Valencia, Hiebbert, and Afflerbach (2014) conducted extensive research on authentic assessment and indicated that there are many facets of the assessment process, and they noted that authentic assessments successfully measure student growth and progress beyond simple mastery of a specific concept. They concluded that this method of assessment gives students a way to demonstrate a wide variety of thinking skills, including showing what they have learned and understand. Layton and Lock (2007),

Levy (2008), and Prestidge and Glasser (2009) also came to similar conclusions about the use of authentic assessment in teaching.

Teacher who use authentic assessments and nontraditional instructional techniques foster a classroom atmosphere that promotes students' ability to learn in ways that traditional methods of instruction and assessment have failed to capture. Gallavan and Kottler (2009) concluded that when students give input to the assessment process, assessments become more meaningful and the students are able to show more of what they have learned. This suggests that authentic assessment provides a more complete picture of student learning compared to what is revealed through standardized testing. Gunzelmann (2005, 2008) looked at testing and the impact it had on students' educational outcomes. As with these other studies, Gunzelmann concluded that creating a learning environment that gives students more realistic ways to develop their abilities, to think, and to be challenged results in a better understanding of how students learn.

In addition, learning does not happen only at the individual level (Watson & Robbins, 2008), and the shift from individual learning towards project-based learning that involves others encourages students to learn from each other as they participate in learning activities. Project-based lessons replicate real life, help prepare students to meet the challenges of working with others, and allow students to learn from their peers as well as from the teacher (Yang, Tai, & Lim, 2015). Hager and Slocum (2010) argued that in addition to the use of nontraditional, project-based instructional activities, assessments also need to reflect what students have learned and to require students to practice skills they will use in life. This connection between the academic curriculum and the

application of that content to real-world scenarios requires intentional effort to arrange and think through authentic or project-based types of lessons and assessments. According to Hager and Slocum (2010) and Zilvinskis (2015), the benefits derived from the use of authentic assessments are high, and the students in their studies showed a greater understanding of what they had learned compared to those taught via more traditional forms of instruction and assessment.

Reforming of Traditional Instruction

The Association for Career and Technical Education (ACTE) made recommendations for high school reform and challenged schools to begin to move beyond seat time and narrowly defined knowledge and skills (as cited in Kiker, 2006). The ACTE recommended that American educators examine alternate ways to engage students and structure how time is used during the school day. They argued that the current measures of student achievement and success do not often show the students' knowledge and skills. Spokespeople for the ACTE stated that education needs to transition from the Carnegie Unit System, which only measures inputs, to one that measures outputs that give students a way to show what they have learned (as cited in Kiker, 2006). Using a more performance-based approach to measuring the skills and knowledge gained may provide a more realistic picture of what the students have learned (Aslan & Reigeluth, 2016b; Kiker, 2006; National Association for Gifted Children, 2009; Webb, Gore, Amend, & DeVries, 2007).

Kiker (2006) pointed to the recommendations by ACTE which highlighted Olympic High School in Charlotte, North Carolina, as an example of a school which

moved from a traditional comprehensive school to one that uses project-based learning as well as traditional learning to engage students and to connect student learning to careers outside of school. The ACTE's 2006 report (as cited by Kiker, 2006), also included examples of schools in California that adopted a similar instructional approach and noted that these schools were able to measure academic growth in students who had not previously shown success through standardized testing. For example, the New Technology High School in Napa, California, which used an authentic assessment approach to gauge students' learning, saw improvement on the California achievement tests. Students scored higher than the average of local and state scores, demonstrating that when a school uses authentic assessment the students may transfer their learning to visible improvement on standardized tests (Kiker, 2006). In these examples given by Kiker (2006), the move to combine traditional ways of teaching with authentic assessment and performance-based teaching has shown that students tend to perform better and to demonstrate what they have learned when nontraditional instruction and authentic assessment are used.

Authentic assessment and student-centered activities also give the teacher a greater ability to monitor what students understand about the material that has been presented. Poon, Tan, and Tan (2009) examined student-centered activities and found that teachers who used inquiry practices in their classrooms also integrated more student-centered activities into instruction. Additionally, students interacted more with the materials and with other students during classroom activities and demonstrated mastery of course content and a high level of thinking as they applied what they learned.

Furthermore, student-developed project-style assessments provide hard data to show improvement in student understanding (Cotterill, 2013; Madeja, 2004; Martin & Yoder, 2009; Yee, 2015). In fact, assessments that are both appropriate for the subject content area and connected to real-world problem solving seem to be more effective than traditional testing methods in terms of allowing students to demonstrate their content knowledge and critical thinking skills (Litchfield & Dempsey, 2015; Martin & Yoder, 2009; Webber, 2011).

The use of an authentic assessment model allows teachers to create lessons and assessments that encourage students to connect the course content to real-world experiences and challenges them to apply their learning using presentation, collaboration, and observation (Holt, Young, Keetch, Larsen, & Mullner, 2015; Koh, 2017). For example, in the social studies classroom teachers might use authentic assessment in the form of drama to engage students and allow them to "show what they know." Morris (2001) noted that students were capable of embedding their knowledge and understanding into a student-created play based on their historical research. Students interpreted, effectively organized, and shared through an in-class presentation. This course-based drama is an example of student-centered instruction and an authentic assessment that communicates student learning and application of the material studied. Further, Myers (2013) stated that authentic assessment is credited with better preparing students for the working world than traditional assessment methods and encouraged the development of critical thinking and problem-solving skills that encouraged learning across disciplines.

Despite studies such as those cited, however, nontraditional teaching strategies and authentic assessment practices are underused in the classroom in favor of more traditional models due to the move towards standards-based curriculum and the reliance on assessments based on those standards. This choice compounds the problem by delaying the development of students' independent thinking (Lombardi, 2008). Faculty members need to make a decision to transition to learner-centered teaching. However, according to Blumburg (2015), this change may be emotionally difficult for educators because it requires a personal desire to change from currently used teaching methods.

Application of MI Theory in Instruction With Authentic Assessment

Authentic assessment and Gardner's MI theory were combined to give a better understanding of how students learn and how teachers can engage their students. Gardner (2006, 2008, 2009) developed the MI theory in an effort to understand how a student learns and how the brain processes information. The theory describes an individual's cognitive ability in terms of several relatively independent but interacting cognitive capacities rather than in terms of a single general intelligence (Baş, 2016), and teachers can choose strategies and activities that capitalize on this knowledge to enhance student learning (Baladehi & Shirazi, 2017).

Gardner (2006) defined the nine areas of the MI theory as linguistic, logical-mathematical, musical, spatial, bodily kinesthetic, naturalistic, interpersonal, intrapersonal, and existential. According to Noble (2004), an understanding of MI theory helps give the teacher a way to design instructional methods that emphasize

independence and flexibility while allowing students to excel in a classroom setting. Lessons and instructional strategies can be adapted to meet students' individual needs.

As educators design curriculum and explore ways that students understand new material and interact with their learning environment, Gardner's theory provides a new way to view learning and how the mind works (Chaturvedi, 2015; Goddu, 2012; Mullican, 2013). Christodoulou (2009) asserted that the MI areas describe a wider understanding of intelligence and that educators should not limit their view of intelligence to one or two areas. By concentrating on the whole student and how he or she learns, teachers gain the ability understand the student's learning styles and strengths that will translate into a more focused ability to learn (Gharial, Saini, & Vig, 2017). Understanding a student's learning in terms of MI is much more valuable than just categorizing the student by test scores alone. MI also gives a teacher a theoretical framework for designing and presenting lessons that encourage and promote improved student success. In Gardner's MI theory, one theme emerges: MI theory promotes improvement in student achievement in those classrooms in which the teachers have applied it to their instructional design (Moran, et al., 2006). Teachers who understand MI and its relationship to how students learn can develop lessons that can focus on the various learning intelligences of their students.

Stone (2009) studied a high school that implemented reform measures that capitalized on Gardner's MI theory. This underperforming high school wanted to improve student success by incorporating high standards, concept-based curriculum, and authentic assessment to enable students to explore individual interests and show what

they had learned. Teachers used Gardner's theory to develop an inventory of learning styles and brain dominance of their students and were trained how to create learner profiles to better prepare them to meet individual needs. Stone (2009) concluded that students who were in classes in which teachers implemented MI significantly improved performance on state tests and allowed the school to drop the state's technical assistance and underperforming status.

MI was also used in history instruction to better meet students' learning needs. Hickey (2004) studied five middle grade classes that represented a mix of disciplines: history, music, art, and gifted resource. Hickey (2004) collected data on these classes through the development of a thematic unit of social studies that highlighted each of the intelligences in Gardner's theory. It included teacher journals, notes from the focus group meetings, and samples of students' work from each study group. Hickey (2004) concluded that teachers and schools that incorporate authentic assessments based on MI in their instruction show promise for student success. Hickey (2004) also found that for MI theory to be effective in a school wide setting, all teachers need to understand MI and to believe in the theory's possibilities.

The implementation of MI starts with training the teachers in the foundations of MI theory and its application to student learning, and student teachers who were trained in using MI in lesson design during pre-teaching course work and who also worked with a master teacher also trained in MI lesson design showed a better understanding of MI and how to adapt to the students' learning (Shearer, 2004). Similarly, Shore (2004) found that when teachers were given the opportunity to explore MI theory and various ways of

teaching during their preparation to enter the classroom, they became more aware of the students' abilities and showed a greater understanding of their students. Shore further concluded that in cases that showed little or no improvement, the teachers were not sufficiently trained in MI theory and in ways to incorporate it into their teaching. This finding confirmed Kornhaber's (2004) study indicating that true implementation of instructional classroom change requires training teachers so that they are confident in their understanding of MI theory and see the connection between the theory and its application to curriculum and pedagogy.

Kunkel's (2007) 10-year study of the development of a MI theory-based school was one of the few that showed major use of MI in curriculum. This study's conclusion, along with that of Kornhaber (2004), also indicated that significant change in teaching requires training in implementation and in connecting content and strategy to student learning. Teachers used authentic styles of learning in the form of group projects, portfolios, and role-play, along with paper-and-pencil tests, to engage the learning process. School officials used state test scores of students to compare how their school was progressing compared to schools that were following a traditional form of instruction and assessment. Kunkel (2009) also provided evidence that authentic assessments are valid in demonstrating whether the use of instructional strategies based on MI theory has the desired effect on the learning outcome. Over time, students in this study showed a steady increase in progress and academic achievement.

Studies of the instructional application of MI show that there is no one approach in implementing or designing strategies for the classroom. Using MI is shown as a way to

demonstrate how students learn and what the students have learned in a variety of ways apart from the paper-pencil test (Aborn, 2006). Learning about and applying MI theory in instructional approaches, according to Aborn (2006), are ways to better equip teachers to meet the students' individual learning needs, and by implementing MI in lessons teachers have a means of more broadly assessing student learning.

Kornhaber (2004) studied three school sites to discern whether lessons and assessments based on MI, if adopted, showed change in two or more of these areas: curriculum, assessment, pedagogy, and school structure. Of the three schools, one school was traditional in its approach, using teacher-centered, textbook-driven instruction. This school showed noticeable improvement in student success after using Gardner's theory in their lesson design and implementation. Similarly, Douglas, Burton, and Reese-Durham (2008) conducted an applied quantitative study that compared two distinct instructional approaches: multiple intelligences (MI) and direct instruction (DI). The results of this study showed improved student achievement by an increase of 25% for the students taught with instructional strategies based on MI theory over those taught with direct instruction methods. Kornhaber (2004) and Douglas et al. (2008) both concluded that the use of MI in instruction helped to foster marked changes in curriculum, assessment, and pedagogy as other teachers saw improvements in the classes that had implemented MI, and changes eventually migrated throughout the school as teachers were encouraged by the results that were reported.

Özdemir, Tekkaya, and Güneysu (2006) examined whether there was a significant difference between MI instruction and traditionally designed science instruction. They

found that the treatment group, which was instructed through MI strategies with authentic assessments and hands-on activities designed to allow the students to use their strengths, showed a marked improvement in understanding of science concepts compared to the second group, which was taught using more traditional methods of teaching.

Further, when teachers design lessons that capitalize on students' different learning styles based on their individual intelligences and abilities, students can more completely demonstrate their understanding of the subject matter than they can through lessons designed without an understanding of MI (Silver, et al., 2000). Likewise, Shearer (2004) concluded that teachers who used MI theory and created MI profiles for each student in the classroom saw improvement in several of the strengths, intrapersonal competence, and strengths-based planning. Hickey (2004) found that MI theory showed promise as a template for designing a long-term instructional strategy to understand and learn the content and concepts being taught. Hickey (2004) also concluded that developing lessons that meet students' learning styles and described Gardner's perspective of MI to encourage parents and teachers to more broadly define achievement in a more balanced approach to understanding education and student learning. Other works by Mullican (2013), Myers and Myers (2014), Rothman (2009), Salinas and Garr (2009), and Schrand (2009) provided background information regarding uses of authentic assessment and MI theory in curriculum design. These authors also explored ways to implement a student-centered approach for teaching and lesson design.

Validity of the Use of Multiple Intelligences Theory

It is important to note that some educators assert that Gardner's theory does not have any place in education because there is not enough evidence supporting the theory for it to affect policy (Chen, 2004). Chen (2004) stated that some have questioned the value of MI and have argued that it doesn't fit into the standard of educational intelligence measurement. The criticism against its use has come from its lack of empirical data to support its claim that it shows student intelligence. Further, critics argue that a new definition for intelligence that is not quantitatively measured should not be used to measure student success or be associated with IQ testing (Chen, 2004; Mullican, 2013; Tseng, Gardner, & Yeh, 2016; White, 2008).

In rebuttal to this criticism, Gardner (2006) stated that MI is not an education policy designed to be used as a curriculum or a way to measure intelligence but rather an effort to understand students' diverse intellectual profiles and broaden the understanding of how students learn. This focus on a broader understanding of intelligence and learning is fundamental to MI's relevance to education and provides insight into addressing the various academic needs of students in the classroom. For example, in the past educators typically used one form of IQ test to identify and categorize students, and this labeling practice created a tendency for teachers to focus on one or two content areas rather than looking more broadly at all of them. Nolen (2003) found that teachers would look at a student's math and language scores to identify giftedness and disregard high achievement in areas such as music and art. The consequence of this practice of only using math and language scores to determine intelligence has been that many talented students have been

overlooked and unchallenged. Calik (2013) stated that MI views individuals as active participants during the teaching and learning process and looks at the whole leaner and not just two areas of learner competency. While traditional educational systems focus more on the mathematical and verbal skills in determining intelligence, Gardner (1995) argued that intelligence comprises much more than mere math and language capabilities and asserted that when teachers add rich experiences to lesson design students can more completely show what they have learned. Further, Gardner developed the MI definition of intelligences considering biological and cultural factors, since these factors play a large role in learning (Brualdi, 1998).

The overarching idea of both Gardner and Brualdi is that when educators incorporate MI into classroom instruction and lesson design they give the students the best possible setting for learning. Other researchers such as those cited previously have confirmed that when teachers understand MI and design lessons and assessments based on students' diverse strengths and needs, learning for the whole class is optimized.

Summary

The literature has shown that authentic assessment and MI each have a significant role in improving student performance and teacher understanding of how students learn and understand the material presented. The literature focused on the use of authentic assessment in both history and other subject areas. The studies reviewed showed that authentic assessment allowed students to better demonstrate an understanding of the content matter. In contrast, standardized assessment has also had an impact on content and curriculum design but often to the detriment of students' learning abilities and styles.

The literature has also shown that teachers and schools that have followed Gardner's MI theory in lesson design and curriculum development have seen improvement in overall student achievement and that students in these schools have demonstrated a better understanding of the content both in real-world activities and through standardized tests.

In this study, I investigated the effect of nontraditional and traditional instructional and assessment approaches on student achievement in history-social science by examining student scores from two classes. Section 3 of this study provides an overview of the methodology and approach for this study, including the rationale, sample, and ethical concerns.

Section 3: Research Method

Introduction

My purpose for conducting this comparative study was to determine the achievement differences of students in eighth-grade history-social science courses who were taught using nontraditional and traditional strategies. In this quantitative study, I compared two different eighth-grade history-social science classes. Through this study, I investigated whether the students in Class A, taught with nontraditional instructional and assessment strategies, had significantly higher student achievement as indicated by CST total history-social science achievement scores than did the students in Class B, taught with traditional instructional and assessment strategies. I describe the research design and justification, rationale, setting, and sample in Section 3. I also provide information on instrumentation, data collection, and the methodological detail.

Research Design

Approach

I used a comparative research design collecting quantitative data, using a pre/posttest two-group design, one that compared the performance in history-social science of students in two eighth-grade history-social science classes. Class A had 30 students; Class B had 31 students. These classes were taught with two different styles of instruction and assessment. Data came from the CST total scores in history-social science. I ran one ANCOVA, the pretest CST total achievement mean scores in history-social science for Class A and Class B were used to statistically adjust the posttest CST total achievement mean scores in history-social science for each class to remove any

variance due to extraneous variables operating in the comparative two-group study. Once this statistical adjustment was made, I could make a more accurate final comparison of student achievement in history-social science between Class A and Class B students, learning under the two different instructional and assessment approaches, could be more accurately made.

Justification

This comparative two-group study design provided a quantitative, or numeric, description of achievement of the eighth-grade student population in the districts under study (Creswell, 2003). I chose to use a comparative two-group research methodology to conduct this study due to my focus on a specific pedagogical strategy based on instruction, the variables found in a school setting, and the specific focus of the research question. This study was different from other studies in that I was not trying to examine entire schools and their students to provide comparisons, but rather I designed the study to examine whether students' test scores in history-social science courses differed because of instructional methods.

Setting and Sample

Population, Sampling Method, and Size

Because I used archived data sets in this study, there were no participants in a literal sense. I did, however, provide a description of the population and sampling method and sample size to enrich the understanding of this study. I focused on the teachers and students of two eighth-grade history-social science classes in southern California. Class A had 30 students; Class B had 31 students. I chose these classes because one teacher

implemented nontraditional instructional and assessment strategies based on MI theory and authentic assessments in classroom instruction while the other teacher used traditional instructional strategies and assessments chosen by the district and not based on MI theory and did not include authentic assessment approaches. The contrast provided by the different instructional/assessment methods showed a difference in student achievement on the CST.

I had five qualifying factors for the choice of these two eighth-grade groups: the students were similar in gender, sociological makeup, ethnic diversity, and academic performance, and they were assigned teachers by the local administrations. Although there may be factors other than teacher instructional/assessment approach that contributed to any existing differences between these two groups, choosing a robust statistic such as the ANCOVA for analysis can statistically account for their effect on the variance in the dependent variable, CST scores, which I analyzed.

Intervention

Class A in District A received Treatment A, exposure to nontraditional teaching methods that included authentic assessment. This class consisted of eighth-grade history-social science students taught with instructional strategies based on MI theory and assessed using authentic assessment strategies. During the school year 2011-2012, eighth-grade students in Class A were taught with instructional strategies based on MI theory that included multiple hands-on activities and group projects done inside the class and as individual student projects. Teacher A took part in district-level trainings on the implementation of instructional strategies based on MI theory and its use in assessing

student learning. This teacher also completed faculty workshops, sponsored by the district as well as outside providers such as the National Council for History Education, which addressed ways to implement and use authentic assessment in lesson design. This teacher also chose to participate in National History Day, which involved an elaborate authentic assessment protocol and showed teachers' understanding of implementing MI theory in lesson design. Participation in this activity required training and experience in authentic assessment methods that were integrated throughout the daily curriculum, a factor that indicated this teacher's qualifications for this group in this study. The course was identified as a course that used instructional strategies based on MI theory and authentic assessments based on student artifacts (the types of student projects created) and student participation in National History Day, an authentic assessment-based program that had students create research projects and present them for judging. For the purposes of this study, Teacher A was called *nontraditional*, and this status served as one treatment in the study.

Class B in District B, the comparison group, received Treatment B. This class consisted of eighth-grade history-social science students taught with instructional strategies and assessed with assessment strategies not based on MI theory and which did not include authentic assessment. During the same school year, 2011-2012, eighth-grade students in Class B were taught with traditional instructional and assessment strategies not based on, or reflecting, MI theory that included direct instruction lessons, worksheets, some group work, traditional assessments given in the curriculum textbooks, and multiple-choice tests. Teacher B, in this course, was *traditional* following a set pattern of

instruction determined by a district timeline of completion that guided all teachers in District B. The lessons followed the curriculum, using set assessments and worksheets with few group or student-created assessments/artifacts. This teacher did not participate in a district or an external workshop related to using instructional strategies or authentic assessments based on MI theory, and this teacher did not participate in the National History Day authentic assessment protocol. In addition, the students whose scores in Class B did not participate in the National History Day authentic assessment-based program that was provided in this local district.

Instrumentation and Materials

I used one measure of archived data for this study. The instrument selected (a) was aligned to the research question, (b) provided measurable data, and (c) was grade-level-appropriate for students. The administrators of the schools in the study collected the student CST scores in the spring of each year.

I measured the dependent variable, student academic achievement in history-social science, by one measure, using pre- and post-scores from the CST total scores on history-social science. Because these scores and filed at each district for the year 2011-2012 and the year *before*, 2010-2011, I grouped these data by class based upon Teacher A and Teacher B and then analyzed. I obtained the Data Use Agreement from each district and principal to use the data described previously.

California Standards Test

The CST scores in history-social science resulted from a normed achievement test that is standards based and was administered to all students in the state of California each

year, at the end of the year. These tests were developed specifically to assess students' knowledge of the California content standards. The State Board of Education adopted these standards, which specify what all children in California are expected to know and be able to do in each grade or course.

According to the CST manual, all questions that are selected are submitted to a detailed review process that results in the standards-based test questions. Proposed test items are submitted to the Educational Testing Service (ETS) and then external reviewers like the Assessment Review Panels (ARPs) and the Statewide Pupil Assessment Review (SPAR) systematically examine and field-test each proposed test item. The CDE, (2013) reviewed these external analyses and then made the final selection of which test items would be included in subsequent tests.

The CSTs were equated to a reference form using a common-item, nonequivalent-groups data collection design and methods based on item response theory (IRT) reported by Hambleton and Swaminathan (as cited in CDE, 2013). According to the CDE (2013), the *base* or *reference* calibrations for the CSTs were established by calibrating samples of item response data from a specific administration. Doing so established a scale to which subsequent item calibrations could be linked. For example, to put the 2012 item parameter estimates on the reference scale, they were linked to selected items from the 2011 test form; these were then administered again in 2012.

The CSTs for English-language arts (ELA), mathematics, science, and history-social science were administered to students in California public schools. Except for a writing component that was administered as part of the Grades 4 and 7 ELA tests, all

questions were multiple-choice and scored by machine (CDE, 2013). The history-social science test for Grade 8 included 75 testing items compared to the one for U.S. history (Grade 11) and world history (Grades 6 & 7) that each had 60 items. To calculate the raw test score on these CST exams, each respondent's multiple-choice answers were summed and divided by 75 or 60 ($\sum \leq 75$ or 60), for Grade 8 or 11, respectively (CDE, 2013).

Once total test raw scores were calculated for the CST, each was converted to a 3-digit scaled score ($150 \leq n \leq 600$) for reporting. These scaled scores also correlated to one of the following performance level categories that were reported adjacent to the scaled score: *Far Below Basic* ($150 \leq n \leq 261$), *Below Basic* ($262 \leq n \leq 299$), *Basic* ($300 \leq n \leq 349$), *Proficient* ($350 \leq n \leq 401$), or *Advanced* ($402 \leq n \leq 600$).

Reliability of the Instrument

Reporting of the CST's reliability on the differences in test scores showed the variation in knowledge and ability, or tested skills, and not the factors due to random variance. According to the California State Board of Education (SBE), the variance in the distribution of test scores was partly due to the differences in knowledge, skill, and the ability that was being tested (true-score variance) and random errors in the measurement process (error variance) (CDE, 2014).

The CDE (2013) stated that the reliability for the total variance estimate for the test was a proportion of the total variance and could be considered a true-score variance. The CDE estimated the reliability that was reported was derived "from analysis of the consistency of the performance of individuals on items within a test (internal-consistency reliability)" (CDE, 2013, p. 372). The scores reported for this study apply only to the test

form under analysis. The CDE (2013) stated that the higher the reliability coefficient for a set of specific scores, the more likely individuals retested would receive similar scores. Table 1 details the reliability score for the tests used in this study, currently a high reliability score of 0.94 ($0 \leq r \leq 1$). The CDE (2013) stated that it did not consider the form-to-form variation in each test because of limitations to equating day-to-day variation.

Table 1

Reliabilities and SEMs for the Eighth-Grade History-Social Science CSTs Statewide

Items *n*	Examinees *n*	*r*	*m*	*SD*	Scale score SEM	*m*	*SD*	Raw score SEM
75	458.422	0.94	357	70	17.36	47.74	14.96	3.96

Validity of the Instrument

According to the CDE (2013), the CST's report analyses demonstrated strong content validity, indicating a strong relationship between the actual content of the test items and the intended content to be measured, the California content standards. According to the CDE (2013), "HumRRO utilized the Webb alignment method to evaluate the alignment of the 2006 CSTs to the California content standards. . . . Good alignment was found for the CSTs in English-language arts, mathematics, science, and history-social science" (p. 383). The CDE website houses a copy of this study for verification.

Administration of the Instrument

Each spring the teachers administered the CSTs were administered in a standardized manner following a prescribed format by which the teachers read and explained the directions to the students, timed the students as they took each section of the test, and collected test materials in a specific order. Students who took the test followed the directions of the administrating teacher and only worked on the test section being given. They could not look ahead or work on other previously administered test sections. After the test was completed, the teachers collected all testing materials, packed them in a prescribed manner, and stored them in a locked area at the school until the district administrator collected the testing materials and sent them to the testing service for scoring (CDE, 2013). School and district personnel protected the instrument's integrity and reliability by following the prescribed administration procedures.

Data Collection and Analysis

The following describes the research question, hypothesis, variables, and the data collection and analysis processes for this study.

Statement of Research Question and Hypothesis

This study was guided by the following research question and hypothesis:

RQ1: Is there a significant difference in California history-social science achievement scores between eighth-grade students who were taught using multiple intelligences strategies and authentic assessments and those who were taught using traditional strategies and curriculum assessments?

H_o**1**: There is no significant difference in California history-social science achievement scores between eighth-grade students who were taught using multiple intelligences strategies and authentic assessments and those who were taught using traditional strategies and curriculum assessments.

H_a**2**: There is a significant difference in California history-social science achievement scores between eighth-grade students who were taught using multiple intelligences strategies and authentic assessments and those who were taught using traditional strategies and curriculum assessments.

In this quantitative study, I compared two different eighth-grade history-social science classes. I investigated whether the students in Class A, taught with instructional strategies based on MI theory implementation and assessed through authentic assessments, had significantly higher student achievement as indicated by CST total history-social science achievement scores than the students in Class B, taught using traditional strategies and curriculum assessments.

Variables: Nature of the Scale

In this study, I analyzed two independent variables (the different instructional/assessment strategies used for Class A versus Class B) and one dependent variable (student achievement in history-social science) to determine the outcome of the research question. All scores for the measures of the dependent variable yielded a mean score for each class and were, therefore, appropriate for use in the ANCOVA.

Pretest and posttest: CST achievement scores. Students in both classes completed the CST administered at the end of each year to all public-school students in

the state. Scores reflected the state content standards taught. California public-school students in Grades 2 through 11 were required to take content-based tests (CSTs) that comprised the STAR program. Students in Grades 7 and 8 took tests that covered math, English-language arts, and history-social science, while students in Grades 9, 10, and 11 took these three exams and a separate science content exam. I used the Grade 7 CST total history-social science scores for the individual students in each class as the pretest, and I used the Grade 8 CST total history-social science scores for the individual students in each class as the posttest for the ANCOVA analyses in this study. The CST scores were calculated in a range from 150 to 600 and broken into the following categories:

- *Far Below Basic* = 150-261
- *Below Basic* = 262-299
- *Basic* = 300-349
- *Proficient* = 350-401
- *Advanced* = 402-600

Students received results indicating their score and category level for each test subsection.

The districts provided data on both the seventh- and eighth-grade history-social science scores from the CST for each student in Class A and Class B. I used the Grade 7 scores for each student, retrieved from the 2010-2011 school year, as a pretest, and the scores represented the prior knowledge coming into the class and group. I used Grade 8 scores for each student, retrieved from the 2011-2012 school year, as the posttest for this ANCOVA, and those scores represented any change in knowledge from participating in

the class and group. The statistical analyses applied account for the variance in achievement attributed to characteristics other than the differing independent variables or treatments in the two classes (Gay & Airasian, 2003).

Analytical Tools

I analyzed the data for this study using a 2-way, between groups ANCOVA to determine if the mean of the state test scores were statistically different between Class A and Class B in the study. I used an ANCOVA to test the main and interaction effects of categorical variables on a dependent variable, controlling statistically for the effects of selected other variables, which allowed me to test hypotheses about two or more conditions. It works by computing a statistic (an *F*-ratio) to test the assertion that the populations of participants given the treatments of the experiment will all perform in a similar fashion on the dependent variable (Gravetter & Wallnau, 2008). An ANCOVA, according to Tabachnick and Fidell (2006), is used to determine the significance of the mean difference between two treatment groups (the independent variables—IV) on a posttest (the dependent variable—DV) after posttest scores are adjusted for differences in the pretest scores (the covariant—CV). They further explained how an ANCOVA works:

> [It] increases the power of an *F* test for a main effect or interaction by removing predictable variance associated with the CV(s) from the error term. That is, the CVs are used to assess the "noise" where "noise" is undesirable variance in the DV (e.g., individual differences) that is estimated by scores on CVs (e.g., pretests). (p. 195)

Effectually, by using the ANCOVA in this study, I controlled for any extraneous variance possibly affecting the actual differences in the posttests of the dependent variable measuring student achievement to determine more clearly the influence of the two independent variables, the instructional/assessment strategies, on that dependent variable. It was therefore, the most appropriate analytical tool for this study.

Data Collection Processes

After obtaining IRB approval from Walden University (07-07-16-0044612), I collected the data sets approved in the Data Use Agreement. The local administrator of each school provided the CST history-social science scores for students in the participating teachers' courses. Each student data set was deidentified, coded with a unique number, and included (a) the CST pretest from Grade 7 (Spring 2011) and (b) the CST posttest from Grade 8 (Spring 2012). The data sets, therefore, were deidentified and anonymous. Only the administrators retained a list of identifiers to student codes. The unique student codes connected the pre- and posttest scores so that data sets remained intact yet still anonymous. I received the coded data in the form of two electronic spreadsheets, coded Class A and Class B, respectively.

For this study, I used one 2-way, between groups ANCOVA to determine if the mean total state test scores in history-social science were significantly different between the two classes in the study. The ANCOVA used the pretest (Grade 7 CST total achievement scores in history-social science) to statistically adjust the posttest (Grade 8 CST total achievement scores in history-social science) for any initial variance due to extraneous variables operating in the comparative, two-group study. The alpha level, α

= .05, was used to set the probability level for rejecting the null hypothesis or accepting the alternative hypothesis.

Protection of Participants' Rights

I used archived data sets for this study and, therefore, did not have any participants in a literal sense. However, all data were kept electronically under password protection to maintain the integrity of the data. Furthermore, the data did not have any identifying student information since each student's data had a code instead of the student name.

Personal from the two schools from which I collected the study data have working relationships with the university that employs me by hosting student teachers in their history-social science classrooms and by taking part in university-led workshops on teaching strategies hosted by the School of Education. However, I have not had any direct contact with the students or staff of these schools in any training workshops and did not have any contact with the teachers or their students during the years in which the data that were used in this study were drawn.

I have been in K-12 education for over 25 years as a history-social science teacher, administrator, and curriculum specialist. I have also written educational programs designed to engage K-12 students through hands-on lessons in history and social studies in a special collections program at a university library and in undergraduate liberal studies introduction to teaching courses.

Section 4: Results

Introduction

In this study, I compared the achievement differences of students in two eighth-grade history-social science courses that were taught using nontraditional and traditional instructional and assessment strategies. Specifically, I compared whether the students in Class A, taught with nontraditional instructional and assessment strategies, had significantly higher student achievement as indicated by CST total history-social science achievement scores than did the students of Class B, taught with traditional instructional and assessment strategies.

I used the following research question and hypothesis to guide the study:

RQ1: Is there a significant difference in California history-social science achievement scores between eighth-grade students who were taught using multiple intelligences strategies and authentic assessments and those who were taught using traditional strategies and curriculum assessments?

***H*$_o$1**: There is no significant difference in California history-social science achievement scores between eighth-grade students who were taught using multiple intelligences strategies and authentic assessments and those who were taught using traditional strategies and curriculum assessments.

***H*$_a$2**: There is a significant difference in California history-social science achievement scores between eighth-grade students who were taught using multiple intelligences strategies and authentic assessments and those who were taught using traditional strategies and curriculum assessments.

In this section, I include a presentation of the research tools used in the study, the data analysis methods, and the findings.

Data Analysis

In this study, I used scores from the state standards test (CST) to address the research question and hypothesis. The deidentified, anonymous data set included 61 sets of student scores. Students in Class A, taught with nontraditional instructional and assessment strategies, totaled 30 students (n = 30), 13 males and 17 females. Class B, taught with traditional instruction and assessment strategies, included 31 students (n = 31), 14 males and 17 females. Of the 61 students, 27 were male and 34 were female. In addition, the teachers for Class A and Class B were both female.

Each student data set included a total pretest score from the Spring 2011 CST history-social science exam and a total posttest score from the Spring 2012 CST history-social science exam. Each student set included both scores; 2 students in Class A were discarded for incomplete information, and Table 2 shows the adjustment made from the raw data to the adjusted data used.

Table 2

Mean Total History Social Science Scores for Class A (Treatment) versus Class B (Comparison)

	n	Treatment Class A	*F*	Comparison Class B
Pretest	30	379.57		380.71
Posttest	31	386.79		359.13
Adjusted Posttest		386.566	10.491**	359.339

*$p < .05$
**$p < .002$

The data show a similar performance for the experimental and control groups prior to treatment (see Table 3). An ANOVA on the pre-scores resulted in no significant difference. An ANCOVA was then conducted to compare post-treatment performance between Class A and Class B. The results of this analysis showed that, for degrees of freedom 1 and 56, an *F* ratio of 10.491 is significant because the probability of obtaining the results by chance alone would happen in only 2 of 1000 trials. This means the results can be attributed to the effects of the treatment. Therefore, the null hypothesis ($H_0$1) can be rejected. Therefore, the total adjusted CST history-social science scores of eighth-grade students in Class A, taught using multiple intelligences instructional strategies and tested with authentic assessments, are significantly higher than those of eighth-grade students in Class B, taught using traditional instructional strategies and tested with traditional curriculum assessments.

When I examined the CST total mean scores for each class, the class average total pretest scores for Class A and Class B were 379 and 380 respectively. The total posttest

score averages for Class A and Class B were 386 and 359 respectively. The CST total scores are measured on a scale of 150 to 600, and student performance is categorized as Advanced, Proficient, Basic, Below Basic, and Far Below Basic by the state scale. Table 2 details the pre- and posttest scores for students in Class A and Class B comparatively, grouped by state category. Class A had two students who did not take the posttest; the *n* was adjusted to reflect $n = 28$.

The data in Table 3 show that, in the pretest, both Class A and Class B had a similar number of students that scored in the Basic, Proficient, and Advanced categories. However, the posttest results show that all of the students in Class A scored in the Basic, Proficient, and Advanced ranges: only 3 students stay at Basic, 15 students improved a level or remained at Proficient, and at least 1 student improved to the Advanced level. For Class B, the posttest results show that 2 students remained at the Below Basic level, 13 scored at the Basic level, the same number, 13, scored at the Proficient level, while only 3 scored at the Advanced level. Therefore, the students who were taught using multiple intelligences strategies and authentic assessments scored higher on the CST assessment.

Table 3

CST Score Measurement

	Pretest		Posttest	
	Class A treatment	Class B nontreatment	Class A treatment	Class B nontreatment
Advanced (402-600)	9	10	10	3
Proficient (350-401)	15	8	15	13
Basic (300-349)	6	7	3	13
Below basic (262-299)	0	5	0	2
Far below basic (150-261)	0	1	0	0
Totals	30	31	28*	31

*Two students did not take the posttest.

Test of Normality: Shapiro-Wilks

The Shapiro-Wilks Test of Normality is important because a normality test is used to determine whether sample data were drawn from a normally distributed population so that certain statistical tests, like ANCOVA, can be used. The null-hypothesis of this test is that the population is normally distributed; and, if the *p* value is less than the chosen alpha level, then the null hypothesis is rejected and there is evidence that the data tested are *not* from a normally distributed population and the data are *not* normal. The Shapiro-Wilks is recommended by researchers for small samples as it is more accurate (Tabachnick & Fidell, 2006). Table 4 shows the results between Class A, the treatment group, and Class B, the nontreatment or comparison group.

Table 4

Test of Normality

	Statistic	*df*	Sig.
Pretest history	.961	58	.062
Posttest history	.992	58	.970

For the pretest in history-social science, a Sig. value of .062 is greater than the alpha level of .05, which indicates that the population falls along the expected line of normality. For the posttest in history-social science, a Sig. value of .970 is also greater than the alpha level of .05, again indicating that the population falls along the expected line of normality. Normality tests are used to determine if a data set is well modeled by a normal distribution and to compute how likely it is for a random variable underlying the data set to be normally distributed (Gravetter & Wallnau, 2008). Therefore, the assumption of normality has been met for this sample.

Skewness and Kurtosis

The test for skewness showed that there is no concern with departure from normality for this set of data with the SD being the same. Pretest (S = .648, SD = .314) Posttest (S = .056, SD = .314).

Test for Homogeneity: Levene's Test for Equality

In this study, I used the Levene Test for Equality of Variances to assess the equality of variances between the two groups, Class A and Class B. This test is run to show that the null hypothesis that the population variances are equal is true. As indicated

by the 95% confidence interval, the true mean difference between the two classes falls between a score of -.52 and a score of -.910 on the CST total history-social science achievement test, supporting the conclusion to reject the null hypothesis.

The results of this test show that the scores for Class A, treatment group (M = 6.07, SD = 21.10), show a difference from the students in Class B, nontreatment group (M = -20.43, SD = 65.53). This effect was statistically significant, t (35.33) = -2.102, p = .043.

From the sample of 59 students, Table 5 shows the adjusted posttest data for the group statistics including the mean, the standard deviation, and the standard error of the mean for the CST total scores between the two classes.

Table 5

Group Statistics (n = *59*)

Class change	*n*	Mean	*SD*	*SEM*
Class A treatment	28	6.07	21.10	3.989
Class B nontreatment	31	-20.43	65.53	11.960

Null Hypothesis

To address the hypothesis in this study, I organized the data sets from the data collection and used the parametric inferential statistic, ANCOVA. According to Cronk (2008), an ANCOVA allows a researcher to "remove the effect of a known covariate. In this way, it becomes a statistical method of control" (p. 79), a method to increase internal

validity. For an ANCOVA to be appropriate, the data set must have an independent and dependent variable as well as a covariate. The latter two must also be interval or ratio levels of data and be normally distributed.

In general, the data show a similar performance for the experimental and control group prior to treatment (see Table 2). I analyzed the data for this study using a two-way, between groups ANOVA to determine if there was a statistically significant difference between Class A and Class B in the study. I then conducted an ANCOVA was then conducted to more accurately compare post-treatment performance between Class A and Class B. The results of this analysis showed that, for degrees of freedom 1 and 56, an F ratio of 10.491 is significant because the probability ($p < .002$) of obtaining the results by chance alone would happen in only 2 of 1000 trials. This means the results can be attributed to the effects of the treatment.

For the alternative hypothesis, there is sufficient evidence to support the claim of H_a2: There is a significant difference in California total history-social science achievement scores between eighth-grade students who were taught using multiple intelligences strategies and authentic assessments and those who were taught using traditional strategies and curriculum assessments (m = H0: $\mu 1 = \mu 2$); (H0: $\mu 1 < \mu 2$).

Table 6, Dependent Variable: Adjusted Posttest shows the scores for Class A (n = 28, M = 386.566, *SD 7.129)* and Class B ($n = 30$, M = 359.339, SD = 6.887. This study showed sufficient evidence (p = .043) to reject the claim of H_o1: There is no significant difference in California history-social science achievement scores between eighth-grade students who were taught using multiple intelligences strategies and authentic

assessments and those who were taught using traditional strategies and curriculum assessments.

In this study, I examined the data were examined using an ANCOVA to test the main and interaction effects of categorical variables on a dependent variable, controlling statistically for the effects of other prognostic variables, and testing hypotheses about two or more conditions. The alpha level $\alpha = .05$ was used to determine the significance between the two groups. The Statistical Package for the Social Sciences (SPSS®) 23.0 was the software used in the analysis.

In the Mean Total History-Social Science Scores, Table 1, covariates appearing in the model are both evaluated at the following values: Pretest History-Social Science = 380.12, which means that the two Group Pretest Means, 379.57 for Class A and 380.71 for Class B, were averaged when used in the ANCOVA formula, because they were so close. Most importantly, the two adjusted posttest means fall within their respective 95% confidence intervals ($\alpha = .05$), thus supporting the evidence that there is a significant difference between Class A and Class B outcomes. Therefore, it is possible to reject the null hypothesis of no difference and accept that the result did not happen by chance alone but was due to the intervention, in this case the different instructional and assessment strategies used with Treatment Class A.

Table 6

Dependent Variable: Adjusted Posttest

			95% Confidence interval	
Class	Mean	*SD*	Lower bound	Upper bound
A: Treatment	386.566	7.129	373.279	400.852
B: Nontreatment	359.339	6.887	345.536	373.141

Summary

In Section 4, I analyzed the data collected during the study. I presented the quantitative data collection and analysis using SPSS 23.0. I then used these data to answer the research question and hypothesis. The purpose of this study was to examine whether a statistically significant difference existed between the student achievement as indicated by CST total history-social science scores in Class A, taught with instructional strategies based on MI theory implementation and assessed through authentic assessments, and Class B, taught with instructional strategies not based on MI theory implementation and assessed with standardized tests.

The theoretical foundation for this study is found within the ideology of constructivism. A teacher who adopts the constructivist theory shifts from being the expert who delivers the content or knowledge to a facilitator of learning for students who are more centrally involved and who participate in creating experiences with the content knowledge. Students in a constructivist classroom use inquiry methods to solve problems, ask questions, and investigate a topic. They also use a variety of resources to find solutions and answers.

Through this study, I provided data to show that a statistically significant difference in achievement does exist between Class A, taught with instructional strategies based on MI theory implementation and assessed through authentic assessments, compared to Class B, taught with instructional strategies not based on MI theory implementation and assessed with standardized tests. Section 5 addresses conclusions and areas for further research.

Section 5: Discussion, Conclusions, and Recommendations

Introduction

In this quantitative study, I compared two different eighth-grade history-social science classes. I investigated whether the students in Class A, taught with instructional strategies based on MI theory implementation and assessed through authentic assessments, had significantly higher student achievement as indicated by CST total history-social science achievement scores than the students in Class B, taught with instructional strategies not based on MI theory implementation and assessed with standardized tests.

The results of this analysis showed that, for degrees of freedom 1 and 56, an F ratio of 10.491 is significant because the probability ($p < .002$) of obtaining the results by chance alone would happen in only 2 of 1000 trials. This means the results can be attributed to the effects of the treatment and not to chance alone. In this section, I include an interpretation of the findings, the implications for social change, and the recommendations for further action and study.

Interpretations of the Findings

I conducted an ANCOVA to determine whether a statistically significant difference in California history-social science achievement scores between two classes of eighth-grade students existed. I used scores on a pre- and posttest in history-social science student achievement from the CST. Results showed that the Class A CST adjusted posttest scores were significantly higher than the adjusted posttest scores of Class B and that there was a significant difference between the two groups' achievement.

I addressed the null hypothesis, rejecting that there was no difference in California history-social science achievement scores between eighth-grade students who were taught using multiple intelligences strategies and authentic assessments and those of eighth-grade students who were taught using traditional strategies and assessments. Therefore, there was sufficient evidence to accept the alternative hypothesis that there was a difference in California history-social science achievement scores between eighth-grade students who were taught using multiple intelligences strategies and authentic assessments and those of eighth-grade students who were taught using traditional strategies and assessments.

Framed in the theoretical foundation of constructivism, the results of this study support the idea that students who are more centrally involved and who participate in creating experiences with the content during both instruction and assessment show better test scores on standardized tests. Research shows that the benefit of authentic learning and assessment based on Gardner's multiple intelligences theory is an effective learning approach that prepares students to think and apply what they have learned (Cronise, 2016; Rule, 2006). When knowledge is placed within relevant contexts, student learning is enhanced as students use the cognitive, affective, psychomotor, and psychosocial leaning domains (Gardner, 2006; Gatlin & Edwards, 2007). Students in Class A experienced authentic learning that included simulation activities, peer evaluation, work with primary data collection documents, and project-based problem-solving techniques, in addition to asking questions and investigating topics to find solutions and answers, that prepared them to do better on the state-required standardized tests. In contrast, students in

Class B experienced traditional lecture instruction, independent reading and worksheet reinforcement, and completed paper/pencil tests for assessments. As the nontraditional instructional strategies were more aligned with the constructivist perspective that supports creative and critical cognition and the empirical analysis in this study showed that the methods were significantly affecting student learning, it is possible that encouraging or increasing the use of more constructivist instructional and assessment methods may improve student learning as well as performance on state summative tests (Blumberg, 2015; Wiggins, 2010).

Implications for Social Change

In this quantitative study, I compared students' standardized test scores to determine whether there was a difference in adjusted mean scores for Class A versus Class B on the state's history-social science test based on nontraditional versus traditional instruction and assessment. The findings from this study may benefit stakeholders by identifying factors such as nontraditional instruction and authentic assessment that promote student achievement. The integration of nontraditional instructional methods empowers students by developing critical thinking strategies, while also fostering individualized learning and promoting student achievement. Positive by-products could be improvement in history-social science student achievement, better self-awareness of the learning process for both the teachers and students, and more student-centered instruction and assessment. Students no longer simply memorize facts in abstract and artificial situations, but they experience and apply information in ways that are grounded in reality and that allow them to connect what they have learned and apply that

knowledge (Rule, 2006). The experiential element of learning creates deeper meaning that neurologically etches deeper learning pathways in the brain. As students experience intentional creative instruction, these neural pathways become deeper, creating stronger memories and more meaningful learning that is then more easily transferred (Rule, 2006).

This study has the potential to promote positive social change as school personnel use these results to improve the local learning environment and develop relationships among students, faculty, administrators, and parents. Students can become better prepared to succeed in college, careers, and adulthood and to develop the ability to collaborate to produce products and practice problem solving skills that will help them develop the ability to work across disciplinary and cultural boundaries to become more productive citizens.

Educators teach knowledge and skills so that students will come to understand crucial ideas in our culture. Tests are devised to assess student understandings, and it is the kinds of nontraditional teaching and authentic assessment experienced by the students in Class A that lead to learning and internalizing such understandings in any field (Wiggins, 2010).

Recommendations for Action

In this study, I compared the students' achievement differences in two eighth-grade history-social science courses that were taught using nontraditional and traditional approaches. Using approaches found in the literature (Kiker, 2006; National Association for Gifted Children, 2009; Webb et al., 2007), the teacher in the treatment class created a more performance-based approach to instruction and assessment to measure the skills and

knowledge of the students, with the results providing a more realistic picture of what the students learned. Teacher A also chose to participate in National History Day, which involved an elaborate authentic assessment protocol and showed that the teacher understood implementing MI theory in lesson design. National History Day is a yearlong academic program focused on historical research, interpretation, and creative expression for students. Students become writers, filmmakers, web designers, playwrights, and artists as they research and interpret history. Participation in this activity required training and experience in authentic assessment methods that were integrated throughout the daily curriculum, a factor that indicated this teacher's qualifications for this group in this study. The course was identified as a course that used instructional strategies based on MI theory and authentic assessments based on student artifacts (the types of student projects created) and the student participation in National History Day, an authentic assessment-based program that had students create research projects and present them for judging. Students who take part in history-social science lessons in which they research a topic in a group or individually as an authentic assessment reach greater depths of understanding on a chosen topic explored according to a rubric's demands. This study showed a significant difference in student test scores between the two subject groups that warrants further exploration.

A recommended action is to train teachers in strategies that incorporate multiple intelligences and in authentic assessment and instruction (Avery et al., 2001; Gatlin & Edwards, 2007; Levinson, 2009). Training teachers to understand MI and use

nontraditional constructivist instructional strategies and authentic assessments will better equip teachers to provide more student-centered instruction.

Recommendations for Further Study

A further exploration of these findings should be conducted in two forms. A longitudinal study with a larger pool of students should be conducted to determine whether similar results would be revealed following similar parameters and conditions. A second question would be to compare the students' achievement as measured by their history-social science grades earned in the two differing classes emphasizing nontraditional versus traditional instructional strategies and assessments. The grades reflect the actual differences in what the students are required to do to show what they have learned in each type of classroom. The short time span under study and the number of participants also limited this study.

Conclusion

One of the problems in history education is the overreliance on standardized tests to determine what students understand (Wiggins, 2010), coupled with a limited focus on student learning processes that lead to in-depth understanding (Dietel, 2011). In education teachers teach knowledge and skills so that students will come to understand crucial ideas in our culture, and educators devise tests to determine what students understand. While the focus has been on preparing students to succeed on state standardized tests, teachers in California must not only prepare students for the tests but also engage their students in successful learning and critical thinking processes that will properly prepare them for life beyond school. The kinds of nontraditional teaching and

authentic assessments that took place in Class A led to students learning and internalizing the information presented. Thus, the students were able to show what they had learned in various ways, and their understanding of the content also transferred into higher CST scores.

In this study, I have shown that the use of a nontraditional approach to teaching history-social science combined with authentic forms of assessment based on Gardner's MI theory gives teachers the ability to track what students have learned and allows the students to demonstrate what they have learned and show higher levels of competency on the state tests. Class A showed that when the teacher taught and assessed students using authentic learning techniques, the students were challenged to think creatively and apply those skills, which then benefited them in the state testing. Teachers who give students multiple ways to show what they have learned help themselves to meet the demands of the state standards and the expectations of the parents and larger community, and they prepare their students to be lifelong learners.

Research related to effective instructional practice emphasizes the need for greater personalization and individualization of instruction (Carroll, 1994; Rule, 2006) because learning is an individual experience. Teachers who provide multiple instructional approaches empower students to make decisions, self-assess, and reflect, and they engage students in the learning process and develop critical thinkers.

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