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An examination of cooperative learning models and achievement in middle and secondary level social studies

Jeffrey R. Niemi
Walden University

Walden University

COLLEGE OF EDUCATION

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Jeffrey R. Niemi

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Review Committee
Dr. Odessa Morman, Committee Chairperson, Education Faculty
Dr. Karen Towers, Committee Member, Education Faculty

Chief Academic Officer

Denise DeZolt, Ph.D.

Walden University
2009

ABSTRACT

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M.Ed., University of Guam, 1999
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Doctoral Study Submitted in Partial Fulfillment
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ABSTRACT

There is a lack of understanding of different cooperative learning methods and their effects on student achievement in middle and secondary level social studies education. The purpose of this quasi-experimental study was to compare two different cooperative learning models in terms of their effects on student achievement in middle level social studies classes. The research question addressed in this study involved understanding the nature of the relationships between different cooperative learning models, gender, ability level and achievement in social studies students. The two cooperative learning models compared were the structured dyad model, which was effective in studies on reading achievement, and the Jigsaw II model, which was well-suited for social studies students. This quantitative study compared the differences between unit pre-and posttest scores of 6th grade students using repeated-measures t test analysis. The study revealed that the learning using a structured dyad model resulted in significantly higher student achievement scores than learning using the Jigsaw II model. Implications of the study include promoting the use of cooperative learning in classrooms to converting schools into learning communities.

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DEDICATION

This dissertation is dedicated to my wife, Eva, and my children, Sabrina and Troy, who supported me and gave me the inspiration, love, and motivation needed to complete this program. This dissertation is also dedicated to my father, Ralph, for his love, support, and instilling in me an appreciation for the value of education. Finally, I must also dedicate this dissertation to my deceased mother, Carol, and grandmother, Pearl, for their love and support during those critical formative years. I owe you all more than words can express.

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CHAPTER 1:

INTRODUCTION TO THE STUDY

Social studies programs are designed to allow students to analyze the history, government, geography, and culture of various societies so that they can understand their impact, both during their respective period in time as well as today. The importance of consensus building and promoting understanding within a vibrant democracy and an interconnected global community demands that educators prepare their students with the collaboration skills that are a necessity in both society and the workplace. Educators must not neglect the *social* component of social studies education. Cooperative learning, a research-based learning and teaching strategy, raises student achievement while honing collaborative skills in a mutually supporting environment (Slavin, 1995; Johnson, Johnson, & Holubec, 1991). Cooperative learning appears to be well-suited for social studies classrooms because students practice group skills while raising achievement.

Cooperative learning is a well-established teaching and learning strategy. Cooperative learning has been extensively researched across a variety of subject areas and has been proven in numerous research studies as superior to traditional teacher-centered instructional approaches. While research studies on cooperative learning have proven its efficacy as an alternative approach to teacher-centered instruction, not much is known about different cooperative methods and their effect on achievement within a social studies context, especially at the middle and secondary levels. A more detailed overview of cooperative learning research is discussed later in chapter 2.

Problem Statement

There is a problem in middle and secondary level social studies education. Specifically, the problem is a lack of understanding of different cooperative learning methods and their effects on student achievement (Hendrix, 1999; Newman & Thompson, 1987). Currently, research on cooperative learning has revolved around comparing different cooperative learning methods against a traditional control group. Cooperative learning has been proven an effective alternative to traditional instruction

in classrooms. While cooperative learning has a strong track record of success against teacher-centered approaches, not much is known about how successful different cooperative methods are under different contexts. Are some types of cooperative learning experiences more effective than others under certain conditions? According to Graham (2005), “There is evidence that there is a gap in research when it comes to comparing cooperative learning methods to each other and analyzing the outcomes with each other, in terms of student achievement” (p. 17). There are many possible factors contributing to the problem, among them a lack of documentation when different cooperative methods are employed in classrooms, and the lack of interest or knowledge of cooperative learning methods by secondary social studies teachers, among others. This study contributed to the body of knowledge needed to address this problem because it compared the achievement effects of two divergent models of cooperative learning within a middle level social studies context.

Nature of the Study

Cooperative learning is a learning situation in which two or more students are working together to complete a common task (Siegel, 2005). Cooperative Learning is a

teaching and learning strategy that has been extensively researched and which has become increasingly popular in recent years. Over the last quarter century cooperative learning methods have continued to give educators a positive alternative to teacher-centered instruction; its positive effects in the classroom are seen in content learning, overall student achievement, student self-esteem, and time-on-task (Slavin, 1995; Mills & Durden, 1992). Cooperative learning has been proven in research studies to be superior to individualistic and competitive learning situations. Cooperative learning strategies also appear to raise achievement for all types of students. “All the research indicates that cooperative learning leads to higher achievement for all students. No research states otherwise” (Wong & Wong, 1998, p. 253). Cooperative learning strategies appear to have significant impact on student learning.

While a number of studies have validated the use of cooperative learning as an effective learning strategy across a variety of grade levels and curriculum areas, including social studies, not much is known about how effective cooperative learning methods compared to each other in terms of student achievement. Past research

studies on cooperative learning have primarily dealt with comparing different methods with control groups and have focused on achievement. Researchers have noted that there is a lack of understanding of the achievement effects of cooperative learning methods compared to each other in varying grade level and subject contexts (Graham, 2005). The literature also suggested that there is a lack of research concerning cooperative learning methods and achievement within middle and secondary social studies classes. According to Newman and Thompson (1987), there is a compelling need for research on the effects of cooperative learning at the secondary social studies level. Hendrix (1999) stated, “Many questions still remain unanswered in the literature about cooperative learning in social studies classrooms” (p. 5). The aforementioned statements are indicators that research on the effects of cooperative learning in social studies classrooms is incomplete.

Research on cooperative learning in social studies classrooms supports the use of a variety of strategies as positive alternatives to teacher-centered methods (Johnson, 1994). Hendrix (1999) remarked on the applicability of cooperative learning in a social studies context,

“Cooperative learning is particularly suitable for social studies teachers concerned with the difficult task of teaching content mastery while also attempting to nurture democratic values and interpersonal skills” (p. 6). While cooperative learning appears to be a natural fit for the social studies classroom, its potential has not been fully realized or understood. This study is of benefit to educators because it compared the achievement effects of two different cooperative learning models in a middle level social studies context, thus it allows social studies teachers to better consider which cooperative learning method(s) may be more effective in their respective classes. Additionally, it added to the literature on cooperative learning and social studies, which has been found lacking.

Research Questions

This quantitative study is concerned about comparing the achievement effects of two different cooperative learning models within a middle level social studies context. In order to discern the differences in achievement effects between the two cooperative models, the following research questions are offered, accordingly:

1. What cooperative learning strategies (Jigsaw II and structured dyad) promote a significant difference in student academic achievement in a middle level social studies class?
2. Is there a significant difference in the academic achievement of middle level social studies students within gender subgroups using different cooperative learning strategies?
3. Is there a significant difference in the academic achievement of middle level social studies students within ability level subgroups using different cooperative learning strategies?

This study attempted to reveal answers to the research questions to better understand the use of cooperative learning in a middle level social studies context.

The null and alternative hypotheses and the independent and dependent variables for each research question were offered as follows:

1. The null hypothesis states that there is no significant difference between the academic achievement of 6th grade social studies students using Jigsaw II and structured dyad cooperative learning strategies. The alternative hypothesis

states that there is a significant difference in the academic achievement of 6th grade social studies students using the Jigsaw II strategy as compared to the students using the structured dyad strategy. The independent variables are the cooperative learning strategies and the dependent variables are the differences in pre-and posttest scores.

2. The null hypothesis states that there is no significant difference between the academic achievement of 6th grade social studies students within gender subgroups using Jigsaw II and structured dyad cooperative learning strategies. The alternative hypothesis states that there is a significant difference in the academic achievement of 6th grade social studies students within gender subgroups using the Jigsaw II strategy as compared to the students using the structured dyad strategy. The independent variables are the cooperative learning strategies and the gender of the students. The dependent variables are the differences in pre-and posttest scores.

3. The null hypothesis states that there is no significant difference between the academic achievement of 6th grade social studies students within ability level subgroups using Jigsaw II and structured dyad cooperative

learning methods. The alternative hypothesis states that there is a significant difference in the academic achievement of 6th grade social studies students within ability level subgroups using the Jigsaw II strategy as compared to the students using the structured dyad strategy. The independent variables are the cooperative learning strategies and the ability level of the students. The dependent variables are the differences in pre-and posttest scores.

Purpose of the Study

The purpose of this quasi-experimental study was to compare two different models of cooperative learning within a middle level social studies context. Volunteer 6th grade social studies students at a school which served the children of military parents comprised the study participants. They used two different models of cooperative learning: a researcher modified version of structured dyad and Jigsaw II. Chapter tests determined whether Jigsaw II resulted in significantly higher student achievement than the structured dyad model. Middle level students formed an intriguing population for this study because it is often during these years that the students first experience the kinds of thinking and work that help them be successful

during their high school years. This study will help middle level educators understand whether some cooperative learning models are better suited for raising student achievement than others in a social studies classroom.

Theoretical Framework

The theoretical framework for this study incorporated the lens of cooperative learning theory to compare two divergent models of cooperative learning in order to ascertain if there was a significant difference in the achievement of middle level social studies students. Cooperative learning is a learning situation in which two or more students are working together to complete a common task (Siegel, 2005). Cooperative learning experiences have been proven superior to individualistic and competitive learning situations in research studies. Cooperative learning groups differ from traditional student learning groups in that cooperative learning emphasizes the learning and utilization of social skills, individual accountability, and positive interdependence. Cooperative learning has proven to be a positive alternative to traditional classroom instruction when the elements of each respective cooperative model are present in the process. This researcher has successfully used cooperative learning

in the classroom for 15 years and is convinced via professional experience that it pays dividends in terms of heightening student achievement, motivation, and collaboration skills for middle level social studies students. The theoretical framework is addressed in detail later in chapter 2.

Operational Definitions

The following terms are defined in order to facilitate reader understanding of the study. Any terms not presented below are defined within the context of their usage in the study.

Group-Study Structure – The composition of a cooperative group as determined by its size, function, and task.

Transescent – A child between the ages of 10 and 14 who experiences extreme changes physically, intellectually, emotionally and socially during this developmental phase.

Scope of the Study

This study involved a non-random convenience sample of 6th grade social studies students at a middle school which served military dependents. While the researcher did not have total control over the process, a minimum of 36 participants were sought. All of the study participants were students of the researcher. The study was limited to

approximately 6 weeks in duration in order for the researcher to have time to train the students, implement the two cooperative learning models, as well as to collect and analyze the data. Data collection involved the use of modified pre-and posttests (see Appendices E – H). The assessment instruments, while carefully modified, may have resulted in less reliability. The researcher was solely responsible for the implementation of the study, collecting and recording the data, as well as interpreting the data for the study.

Assumptions of the Study

Cooperative learning methods have been proven superior to individualistic and competitive learning situations in research studies. It is assumed that both forms of cooperative learning used in this study had positive effects on student achievement. As a veteran middle school social studies teacher, it is assumed that the structured dyad model resulted in higher student achievement for 6th grade students because of its structure and organization. Sixth-grade students are new to the middle school way of doing things, and are still quite young. They are more likely to appreciate the more prescribed structure of paired learning (to include equal-sharing of the roles in

the group) while also gaining more individual attention via the small group size. It is, after all, hard to get lost in a group of two. The greater freedom and responsibility thrust onto 6th grade students in the Jigsaw II approach may be more than most could handle (and, consequently, result in lower student achievement as compared to the structured dyad model). It is assumed by this researcher that the Jigsaw II method is more suitable for older middle school and high school students who are better equipped to handle the higher degrees of freedom that this model allows.

Limitations of the Study

This study was limited in a number of ways. Due to the transient nature of the student population (most transfer after a 2 year stay), it was difficult to know if a student who started the study was able to complete it. The amount of individual studying that a student may have done in preparation for the unit posttests is a limiting factor. An additional limiting factor is the number of student absences accumulated via the study period and their respective impact on comprehension of the material. The aforementioned limitations may have had an impact on

student performance and are inherent weaknesses of this study.

Significance of the Study

This study addressed the lack of understanding of different cooperative learning methods and their effects on student achievement in a middle level social studies context. Specifically, this study is important for a number of reasons. First, this study added to the research on cooperative learning within a social studies context, which has been found lacking in the literature. Secondly, this study can be a catalyst for middle level social studies teachers to consider implementing cooperative learning in their classrooms, or to encourage them to consider alternative cooperative methods in their teaching. Finally, society dictates that students are prepared to work in a team environment before they leave school so that they are prepared to take their place in the global workplace. It is obvious that this study will provide impetus for either using cooperative learning in the classroom or for rethinking one’s approach in choice of cooperative learning strategies.

Cooperative learning is a necessity, not only for learning’s sake, but to lay the foundation for valuable

collaboration skills that are in demand by a myriad of employers and occupations. This study is significant because not much is known about cooperative learning and its effects on achievement in a social studies context, especially at the post-elementary level. Social studies teachers have an excellent opportunity to become the standard bearers for cooperative learning at their schools. Social studies classrooms can be the epicenter of a wave of educational reform that can transform a school into a community of learners. As cooperative learning and increased collaboration become entrenched in schools, the possibility of transforming educational practices across communities, states, and nations becomes increasingly more likely.

Summary

Cooperative learning is an effective teaching and learning strategy in which students work together towards a common goal. Cooperative learning has been proven in research studies to be superior to individualistic and competitive learning situations. Not much is known, however, about how efficacious different cooperative models are in different contexts. This study was conducted to determine if the Jigsaw II cooperative strategy is more

efficacious in terms of academic achievement than a form of structured dyad in a middle level social studies context.

The remaining chapters highlight important segments of this research study. Cooperative learning is discussed in depth via the review of the literature offered in chapter 2. The review of the literature revealed that the researchers Slavin and Johnson and Johnson have had a significant impact on recent cooperative learning practices. Also, nine effective cooperative learning practices were analyzed for their suitability within social studies classrooms. Chapter 3 addressed the research methodology used in this study, including the rationale to employ a quantitative study and the repeated-measures t test for data analysis. The results of the study are discussed in chapter 4. It was revealed that the structured dyad cooperative model employed in the study was more effective than the Jigsaw II model in a number of instances. Finally, chapter 5 addresses the summary, conclusions, and recommendations of the study. Cooperative learning situations that involve small groups of students in highly structured environments appear to pay dividends in terms of 6th grade student achievement in social studies.

CHAPTER 2:

REVIEW OF THE LITERATURE

Cooperative learning is a popular and effective teaching and learning strategy. The central research question for this study was what cooperative learning strategies (Jigsaw II and structured dyad) promote a significant difference in student academic achievement in a middle level social studies context? Thus, the review of the literature sought a thorough understanding of cooperative learning in general, and then naturally progressed to an exploration of various cooperative learning methods and their viability for promoting achievement within a middle level social studies context.

The literature review disclosed that the Jigsaw II method was well-suited for the social studies classroom. The literature review also unveiled the potential for structured dyads to be highly effective within a social studies context, given its high effect size on achievement in reading comprehension studies. The review of the literature for this study included cooperative learning methods, contributors to cooperative learning theory and practice, the middle level student, social studies education, and the global workforce, among others. The

aforementioned areas organized the literature review and provided a framework from which to search the literature. The organization of the review and the strategy used for searching the literature follows.

The investigation of the available literature revolved around a broad-based approach which allowed for a holistic understanding of the topic. As information was gleaned from the literature concerning the applicability and usefulness of certain cooperative methods to middle level social studies contexts, the focus narrowed considerably. Ultimately, the literature review is a culmination of both a broad-based review and a corresponding narrowing of the focus as the direction of the review became more evident. Computerized databases (i.e., EBSCO, Gale, ProQuest, and ERIC) were employed to locate journal articles and books that were germane to the overarching research question, what cooperative learning method (Jigsaw II or structured dyad) promote a significant difference in student achievement within a middle level social studies context? Key words (achievement, cooperative learning, middle school, middle level, social studies, Jigsaw, Jigsaw II, structured dyad, dyad, paired learning) were identified which refined the search of the literature. Finally,

conference papers and dissertations were reviewed to find the latest research developments and studies relevant to the investigation.

Overview of Cooperative Learning

Cooperative learning is one of the most researched teaching and learning strategies in education. In its most basic form, cooperative learning is a learning situation in which two or more students are working together to complete a common task (Siegel, 2005). A more detailed explanation of cooperative learning is offered by the *Office of Education Research Consumer Guide* (1992):

> Cooperative learning is a successful teaching strategy in which small teams, each with students of different levels of ability, use a variety of learning activities to improve their understanding of a subject. Each member of a team is responsible not only for learning what is taught but also for helping teammates learn, thus creating an atmosphere of achievement. (p. 1)

Cooperative learning has been proven effective in Heightening student success across all grade levels and subject areas (Johnson & Johnson, 1989; Slavin, 1991; Wong & Wong, 1998).

A number of researchers have contributed to cooperative learning theory and research. According to Fore, Risen, & Boon (2006), “Cooperative learning is an instructional model that draws extensively on contributions

of multiple theorists, including Piaget, Vygotsky, Carroll and other researchers" (p. 3). Lev Semyonovich Vygotsky, a Russian psychologist, was considered a pioneer in the field of developmental psychology. Vygotsky (1978) offered the following comments on the nature of learning:

> Learning is more than the acquisition of the ability to think; it is the acquisition of many specialized abilities for thinking about a variety of things. Learning does not alter our overall ability to focus attention but rather develops various abilities to focus attention on a variety of things. (p. 83)

Vygotsky implied that learning is contextual. Cooperative learning situations, for example, allowed students to perceive information in ways that were otherwise not possible if they were learning the same information in a different context. *Learning develops various abilities to focus attention on a variety of things.*

A number of researchers have contributed to cooperative learning research. Holliday (2000) noted the following researchers as contributors to research on cooperative learning: David Johnson, Richard Johnson, Edith Holubec, Robert Slavin, R.M. Mattingly, Robert VanSickle, F.M. Newman, J. Thompson, Norman Davidson, and T.C. Worsham (p. 4). While the individual researcher contributions to cooperative learning were not be addressed here, the key findings of cooperative learning researchers were

categorized as follows: peer-mediated instruction was more effective than formal instruction by expert adults (Piaget & Inhelder, 1969); students learned more from instructional interactions with those who are more intellectually advanced (Vygotsky, 1986); and cooperative learning strategies revolved around five basic elements (Johnson, Johnson, & Holubec, 1991, p. 33). They include: positive interdependence, face-to-face interaction, individual accountability, interpersonal and small group skills, and group processing.

Numerous research studies on cooperative learning have been conducted, and have validated theorists' claims about the strategy as an effective teaching and learning approach. According to *Research Corner: Education Data and Research Analysis from Edvantia* (2005), "Studies on cooperative learning indicate a strong impact on student achievement as well as increased motivation and improved social interactions with adults and peers" (p. 68). It appears evident that cooperative learning methods are effective in a myriad of ways.

Cooperative learning as a motivational strategy cannot be ignored. Some students like to cooperate with their peers (Gardner, 1999, p. 198). In order to meet their

students needs for affiliation, autonomy, and physical activity, some teachers use cooperative learning to address the students' needs to be social (Hootstein, 1994, p. 4). The need to address students' intellectual and emotional needs during the middle years is of paramount importance to educators. The apparent ability of cooperative learning methods to improve achievement, motivation, and social skill development in middle level students make them difficult for teachers to ignore. "Given the nature of the transescent student and the reportedly positive results of cooperative learning strategies on cognitive and affective domains, it would appear that cooperative learning is an essential element in middle level instruction" (Niemi, 1999, p. 14). Cooperative learning methods need to be an integral teaching strategy in middle level education.

Theoretical Framework

Cooperative learning is one of the most researched and utilized practices in education. Over the last quarter century cooperative learning strategies have arrived as a popular option to traditional (teacher-centered) instruction due to their positive influence on student achievement, self-esteem, and on-task behavior (Slavin, 1991; Mills & Durden, 1992). While cooperative learning as

an educational practice has been growing in popularity over the last quarter century, cooperative learning theory can be traced to the work of social psychologists and researchers at the turn of the previous century.

Studies concerning human behavior have had a significant influence on the development of cooperative learning theory. Social scientists investigated the effects of different conditions (individualistic, competitive, and cooperative) on human behavior in the early and middle 1900s (Maller, 1929; Deutsch, 1949). The social behavior exhibited by people was of particular interest to researchers. Deutsch elicited a theory of social interdependence which could be positive (cooperative), or negative (competitive) in nature (Deutsch, 1949). Early studies suggested that human beings working in cooperative configurations learned better than they did in competitive or individual situations. The work of early theorists and researchers regarding social psychology and its educational repercussions paved the way for the development of cooperative learning as an alternative to traditional (or teacher-centered) instructional approaches. Cooperative learning theory has been developed, influenced, and refined

by a plethora of contributors across a variety of disciplines.

While many researchers have contributed to the advancement of cooperative learning as a viable, effective, and popular teaching and learning strategy, only a select few have helped to shape cooperative learning into the forms that are commonly utilized today. In the early 1980s, Slavin (1983) offered a cooperative learning experience consisting of heterogeneous groups of four or more students who earned recognition, rewards, or even grades based on the learning performance of the group. Many of Slavin's student team learning methods are practiced by educators today. Johnson and Johnson (1989/1990) identified the essential elements of cooperative learning groups. The Johnsons' cooperative learning method, learning together, is also one of the most easily used and widespread of cooperative learning methods practiced today. The aforementioned researchers have, arguably, wielded significant influence on the direction and substance of cooperative learning as an educational practice. The cooperative methods of Johnson and Johnson, Slavin, and others are discussed in greater detail below.

Cooperative Learning Methods

The researchers Slavin and Johnson and Johnson have had significant influence on the shape and direction of contemporary cooperative learning practices. In an analysis of eight of the most researched and practical cooperative learning methods offered by Manning and Lucking (1991), six of the eight methods listed were linked to either Slavin or Johnson and Johnson. Slavin (1995) summarized the research on the achievement effects of cooperative learning in comparison to control groups, which included the eight methods offered by Manning and Lucking, as well as structured dyadic methods. Table 1 offers an overview of nine well-researched and practical cooperative learning methods useful for elementary and secondary students. An overview of each of the nine cooperative learning methods follows.

Table 1

Cooperative Methods and Mean Effect Size

Method	Mean Effect Size
Learning Together	+.04
STAD	+.32
TGT	+.38
Jigsaw (including Jigsaw II)	+.12
TAI	+.15
CIRC	+.29
Group Investigation	+.06
Structured Dyad	+.86

Note. From Slavin, Robert E. *Cooperative Learning, 2e*. Published by Allyn and Bacon, Boston, MA. Copyright © 1995 by Pearson Education. Adapted with permission of the publisher.

According to Table 1, structured dyads had the highest mean effect size of +.86 in achievement studies on cooperative learning.

Learning Together

Learning together, a cooperative method developed by the researchers David W. Johnson and Roger T. Johnson, evolved from an effort to train teachers how to use cooperative groups in the classroom at the University of Minnesota in 1966 (Johnson & Johnson, 1999). In the

learning together method, cooperative effort is emphasized via the inclusion of five basic elements: positive interdependence, face-to-face interaction, individual accountability, social skills, and group processing (Johnson & Johnson, 1989/1990). In the learning together method, students complete worksheets in heterogeneous groups of four or five. The learning together method places an emphasis on team-building and group self-reflection. Student work is usually recognized and rewarded in the form of team grades.

Student Teams-Achievement Divisions

Student teams-achievement divisions (STAD) is a cooperative learning method developed by Robert Slavin in 1978 in which heterogeneous groups of four work within their teams to master a lesson presented by the teacher.All students take individual quizzes which are then compared to past averages. Team scores are compiled based on the extent in which the students in the group meet or surpass their previous performance. Teams that meet certain criteria earn certificates or other rewards (Slavin, 1995).

Teams-Games-Tournaments

Teams-games-tournaments (TGT) is a cooperative method developed by David DeVries, Keith Edwards, and Robert

Slavin in 1978. The TGT method relies on the same teacher presentation and teamwork as in STAD, but replaces the individual student quizzes with weekly tournaments in which students play academic games with members of the other teams to contribute points to their team acores. Students play the games at three-person “tournament tables” with others of similar performance levels. The winner of each tournament table brings 60 points to his or her team. Teammates assist each other in preparing for the tournament by studying worksheets and explaining problems to each other. As in STAD, high-performing teams earn certificates or other kinds of team rewards (Slavin, 1995).

Jigsaw

Elliot Aronson and his colleagues (1978) developed the Jigsaw method. In the Jigsaw method students are assigned to six-member “home” teams to work on academic material that has been divided into sections. Each member of the group is assigned a section to study on which he or she becomes an “expert.” Experts are then assigned to “expert groups” in which they discuss the information and decide on the best way to present the material to members of their home teams. After the students have mastered the material,

they return to their home teams to teach the other members the material.

Jigsaw II

Robert Slavin offered a modified version of Aronson's Jigsaw method in 1978, dubbed Jigsaw II, in which four member heterogeneous teams (similar to that of STAD or TGT) are assigned narrative materials to read. Each team member is randomly assigned to become an "expert" on part of the reading assignment. After reading the material, experts from different teams meet to discuss their common topics, and then they return to their teams to teach their topics to their teammates. Each student is then quizzed on all topics. Team recognition is similar to that based on the STAD method (Slavin, 1995).

Team Accelerated Instruction

Team acclerated instruction (TAI) was developed by Slavin, Leavy, and Madden (1986) to teach mathematics to students in grades 3 – 6. The TAI method uses four-member heterogeneous teams (like STAD and TGT) and combines cooperative learning with individualized instruction. Students take a placement test, then proceed at their own pace. Team members monitor each other's work and help with problems. Students take individual tests which are scored

by student monitors from different teams. Each day two different students serve as monitors. The teacher tabluates the number of units completed by all team members and gives certificates or other team rewards to teams which meet or surpass a given criterion based on the number of final tests passed.

Cooperative Integrated Reading and Composition

Cooperative integrated reading and composition (CIRC) is a cooperative method developed by Madden, Slavin, & Stevens (1986)to teach reading and writing in upper elementary and middle grades. In CIRC, students are assigned to different reading teams in pairs of two or more different reading levels. Students, working in pairs within their teams, read to oneanother, make predictions, summarize, write drafts, peer edit, or any of a number of decoding and cognitive activities. In CIRC, students follow a sequence of teacher instruction, team practice, team preassessments, and quizzes. Quizzes are administered when the team feels each student is prepared. Team rewards are given to teams based on the average performance of all team members on all reading and writing activities.

Group Investigation

In the group investigation method, students are formed into groups of two to six members according to common interest in a topic (Sharan & Sharan, 1989/1990). Students then research an aspect of the topic under study, synthesize their information, and then present what they have learned to the entire class.

Structured Dyadic Methods

Structured dyadic methods includes a number of highly structured methods in which pairs of students teach each other (Slavin, 1995). One of the oldest and most widely researched models is classwide peer tutoring (CWPT), which was developed in Kansas City, Kansas during the 1980s (Delquadri, et al., 1986).The CWPT method was designed to improve the reading, math, and spelling skills of at-risk students in the elementary grades. In CWPT, students are paired with another in the classroom to tutor one another, training procedures (including the awarding of points for good tutoring behavior) are systematically implemented, and students have an increased opportunity for responding. Another structured dyadic method, peer assisted learning strategies (PALS), shares some of the CWPT components, but differs in that its tutoring procecures incorporate more

strategic instruction (i.e., reading comprehension strategies) in the tutoring sessions. Students work in pairs to listen to each other read, summarize what was read, and predict what was going to happen next in their reading (Fuchs,et al., 1997).

The aforementioned nine cooperative learning methods are widely used by educational practicioners today. Undoubtedly, the efforts of the Johnsons and Slavin have contributed greatly to our understanding and utilization of cooperative learning in the classroom. While all of the methods discussed previously are effective, a few seem especially well-suited for use within a social studies context. The adaptation of useful cooperative learning methods for use within a social studies context are discussed below.

Cooperative Learning and the Social Studies

Cooperative learning is an instructional method which Can be used in a myriad of subjects and grade levels. According to Johnson (1994), research on cooperative learning in social studies classrooms supports the use of various methods as positive substitutes in lieu of teacher-centered approaches. In the previous section, nine of the most widespread, effective cooperative methods used by

educators were identified. While a multitude of cooperative learning methods work well in a variety of settings, are some better suited for some content areas than others? Social studies, it appears, is an area where cooperative learning is particularly useful. The unique aspects of social studies education will be discussed below, as well as the cooperative methods which the literature suggests is particularly effective for social studies classrooms.

This researcher maintains that social studies programs are designed to not only teach students about history, geography, government, economics, and sociology, but to also promote citizenship, democratic values, and otherwise prepare students to take their place in an increasingly global society. Cooperative learning is an integral instructional vehicle for the social studies classroom, because the process is as valued as the product. Cooperative learning strategies not only help students learn social studies content, but also sharpen social skills and facilitate democratic ideals (Hendrix, 1999). While cooperative learning appears to be an ideal instructional match for social studies students, which cooperative methods appear to hold the most promise for facilitating mastery of content? According to the

literature, the Jigsaw II strategy appeared to be well-suited for social studies instruction. Another method which appeared to potentially be very useful within a social studies context is the structured dyad. Both of these methods will be discussed in depth below.

The research on the use of cooperative learning strategies for secondary social studies identified one method in particular: the Jigsaw series (Fore, Riser, & Boon, 2006; Holliday, 2000; Hendrix, 1999; Slavin, 1995). There are a number of reasons for employing the Jigsaw series in a social studies context. Jigsaw teaching is an appropriate strategy for social studies because there is often not always one answer to a question (Holliday, 2000, p. 5). Rhetorical and open-ended questions are confronted more easily when students have exposure to a myriad of perspectives. In addition, concept development is usually one of the main goals in a social studies lesson.

Jigsaw II, a 1980 modification by Slavin to Aronson's Jigsaw approach, is most appropriate in subjects such as social studies, in which concepts rather than skills are the learning goals (Fore, Riser, & Boon, 2006, pp. 6-7). The Jigsaw II method was consistently brought up as an effective cooperative learning strategy for use within a

social studies classroom. A description of Jigsaw II was offered by the *Office of Education Research Consumer Guide* (1992):

> Jigsaw II is used with narrative material in grades 3 - 12. Each team member is responsible for learning a specific part of a topic. After meeting with members of other groups, who are "expert" in the same part, the "experts" return to their own groups and present their findings. Team members then are quizzed on all topics. (p. 1)

The rich interaction provided by the base and expert group structures in Jigsaw II will assist in concept development. Concept development is a primary aim of many social studies lessons. For this reason, Jigsaw II appears to be a well-suited cooperative strategy for middle and secondary level social studies students.

There are additional reasons for employing the Jigsaw series in a social studies classroom. The Jigsaw series would prove useful in a typical social studies classroom environment because narrative materials (i.e., chapter, story, biography, or other descriptive materials) are often employed (Slavin, 1995). The fact that social studies programs are reading intensive is difficult to ignore. Students may often refer to their textbooks or other reading material throughout a social studies lesson. Student mastery of a social studies lesson is a significant

consideration when planning instructional activities. Hendrix (1999) states, “Jigsaw strategies can be used quite successfully in social studies, particularly during a mastery-oriented lesson where a textbook chapter is divided into sections” (p. 4). The use of the Jigsaw approach as a means to promote learning in social studies is compelling.

The Jigsaw series (Jigsaw II) was identified by the literature as an ideal cooperative learning method for social studies students. Another model which has demonstrated high effect sizes in research studies on student achievement is the structured dyad. The potential for paired learning within the social studies is discussed below.

The dyad, or pair, is the smallest (and least complicated) of all group configurations. The ideal nature of the dyad as the basis for effective group processes was discussed by Callahan (1994):

> This boundedness as a unit is why dyads gain their strength and intensity as psychological bonds. There is no third party to break open or diffuse the one-to-one focus and mutual dyadic interaction. Two persons can become united as one in a way that is impossible for three or four persons. Attentional focus in a dyad cannot so easily be distracted from the other, nor in a dyad can two or more persons gang up on one party. (p. 7)

The mutual attentiveness that is experienced by individuals in dyad groups help to ensure their success as a social unit. Besides the uncomplicated group interaction aspect allowed by pairs of learners, structured dyads rely on prescribed interaction to facilitate learning. Commenting on the dyadic structure employed in research studies concerning college students, Hythecker, Dansereau, & Rocklin (1988) state, “Two students interact as equal partners and follow the steps of a script or metastrategy to learn from passages adapted from sources such as science textbooks and manuals for performing medical procedures” (p. 24). The small group and balanced interaction that the structured dyad model allows make it an attractive option as an instructional strategy. The structured dyad, or scripted pair learning, has been identified as a cooperative method which has yielded high effect sizes in student achievement scores in research studies.

The nature of the social studies classroom as a place where narrative materials are often employed was as strong a reason to consider structured dyads as it was with the previously discussed Jigsaw series. According to Hendrix (1999), “Unfortunately, many students are unable to learn and master social studies because of difficulties in

understanding and grasping the content" (p. 1). A number of structured dyadic models have been developed to assist students with reading difficulties. According to Maheady,Mallette, & Harper (2006), "Peer assisted learning strategies (PALS), classwide peer tutoring (CWPT), and START tutoring have emerged from over twenty years of solid empirical research as potentially effective tools in the fight to prevent or remediate reading failure, particularly among our most fragile learners" (p. 66). The fact that structured dyadic models were designed to remediate reading difficulties in at-risk children is significant for educators. The potential for the structured dyad as a way to improve student comprehension of social studies concepts was intriguing.

The script, or metastrategy, used by students in a structured dyad varies depending on the method. An excellent example of a learning script for structured dyads, however, is derived from a research study conducted with college students. Hythecker, Dansereau, & Rocklin (1988) discussed the aforementioned script below:

> In general, the script requires each pair member to read the first section of a passage. One pair member then serves as recaller and attempts to orally summarize from memory what has been learned. The other member serves as the listener and facilitator and attempts to correct errors in the recall and to

> further facilitate the organization and storage of the material. The partners alternate roles of recaller and listener for succeeding sections of the passage. (p. 24)

While structured dyads have been widely implemented to improve reading, math, and spelling, the structure and the simplicity of the group processes make the structured dyadic method an attractive cooperative learning option for social studies students as well. The use of structured dyads within a social studies context was supported in the literature. According to Mastropieri, et al., (2001), peer tutoring is an intervention that would be useful in other subject areas (p. 24).

Achievement and Cooperative Learning

While the benefits of cooperative learning certainly are not limited to the raising the academic achievement of students alone, it is, nonetheless, one of the most significant reasons to employ it as a learning strategy. A review of numerous research studies on cooperative learning have shown evidence that cooperative structures which included group goals and individual accountability have had a greater effect on student achievement than those which did not include these two elements (Slavin, 1995). Group goals are important because they encourage each student to be responsible to the team. According to Wong & Wong

(1998), “Goals or tasks are structured so that the students concern themselves with the performance of all members of the group, not just their own performance” (p. 256). Individual accountability ensures that each member of the group has learned the material on their own and helps to make each student an active, contributing member of the group. According to Johnson, Johnson, & Holubec (1991), “Practice tests, randomly selecting members to explain answers, have members edit each other’s work, teach what they know to someone else, use what they have learned on a different problem, and randomly picking one paper from the group to grade, are ways to structure individual accountability” (p. 14). Group goals and individual accountability are complementary and critical elements that help bind the individual members to the group, and the group to its members.

While group structures that include group goals and individual accountability have been shown to be superior in terms of student academic achievement to those which do not, there was evidence that other cooperative structures can also have positive effects on student achievement. Slavin (1995) states the following:

> It is possible to create conditions leading to positive achievement outcomes by directly teaching students structured methods of working with each other (especially in pairs) or teaching them learning strategies closely related to their instructional objective (especially for teaching reading comprehension skills). (p. 45)

The structured dyad (or scripted pair) cooperative method draws upon a pair of equal partners who take turns performing tasks in a prescribed manner. According to Lederer (2000), “The premise of reciprocal teaching is that students, by active discussion of text in a small group of their peers, can enhance their learning and improve their ability to comprehend text and monitor understanding of the text” (pp. 1 – 2). It appears that the use of highly structured pairs can be an effective alternative to larger cooperative learning groups (which utilize the elements of group goals and individual accountability) when it comes to promoting the academic achievement of students.

The Middle Level Learner

Middle level education is designed to meet the needs of students (usually grades 6 – 8) who are in a unique stage of their physical, emotional, and cognitive development. The transition from junior high schools (which emphasized student academic and vocational development) to

middle schools (which added the need to address the personal, academic, and social needs of students) marks one hundred years of trying to adapt schools to young adolescent students (Manning, 2000). The varied needs of students at this level, consequently, dictate that middle level teachers implement pedagogic strategies that are designed to meet the holistic needs of students during this unique developmental period.

Cooperative learning methods are a critical part of middle level instruction because they are proven to boost student motivation, self-esteem, academic achievement, and social skills. The need for instructional strategies, like cooperative learning, at the middle level is highlighted by Armstrong (2006), “At the middle school level (ages 11 - 14) the key focus should be on social, emotional, and metacognitive learning. Curriculum emphasis should be on affective education, emotional intelligence development, and small-group work” (p. 158). The need for students to feel a sense of belonging is an important affective factor that cooperative learning can help assuage because students are put into a position to both give and receive peer support. According to Anderman (2002), a number of studies have indicated that a sense of belonging is an important

psychological variable of adolescents, and that when it is met, positive outcomes ensue. The fact that cooperative learning methods not only increase student achievement but are also developmentally appropriate and instill a sense of community are important factors for middle school educators to consider when considering learning activities for their students.

Cooperative Learning and Student Differences

While middle level students stand to benefit much from cooperative learning experiences due to the reported positive effects on social, emotional, and cognitive domains, what kinds of students (if any) benefit the most from certain cooperative learning experiences? Is there a difference in student academic achievement within gender subgroups when exposed to different cooperative learning methods? Is there a difference in student academic achievement within ability-level subgroups when exposed to different cooperative learning methods? Both student gender and ability, as concerns cooperative learning and academic performance, are addressed below.

Student gender has been a factor in previous research studies on cooperative learning. Studies on cooperative learning have indicated that both males and females benefit

equally in terms of academic achievement when compared to traditional control groups (Delaune, 2000). There does appear to be differences in how males and females learn and relate to others, however. According to Kirschenbaum & Boyd (2007), “Girls seem to favor learning in a quieter setting in which they work together and come to a consensus. Boys tend to favor a setting that is more competitive, physically active, and louder” (p. 1). The differences in how girls and boys interrelate and how this potentially impacts the academic performance of students in cooperative learning groups is discussed further below.

Studies on cooperative learning which compared the effects of homogenous and heterogeneous grouping on student academic achievement have indicated that there were differences in the academic achievement of students when placed in homogenous and mixed-gender dyads. According to Slavin (1995), studies on cooperative learning have indicated that gender-homogenous groups outperformed heterogeneous groups. Dyad grouping appears to be especially important for girls in terms of their academic performance. Ding and Harskamp (2006) indicated that a study on high school physics students in China revealed that females in female-female dyads significantly

outperformed females in mixed gender dyads, and that within mixed gender dyads males outperformed females. Educators need to consider gender configurations carefully when assigning paired learning experiences.

The middle school years appear to be a particularly sensitive time for girls. According to Broughton & Fairbanks (2003), the middle school years are especially damaging to girls as studies have noted that a gap in self-esteem between boys and girls widened for girls during the middle school years and that girls scored lower than boys on standardized achievement tests by the time they reached high school. Girls need to be put into cooperative learning situations which allow them to often work within gender homogenous groups during their middle school years.

While there is evidence that differences in academic achievement exist as concerns boys and girls and gender grouping, not much is known about the relationship between gender, specific cooperative methods, and academic achievement. According to Graham (2005), future studies need to examine the relationship between gender, academic achievement, and specific cooperative methods (p. 66).This study will help educators better understand the dynamic

between gender, achievement and specific cooperative learning models.

Another factor considered in previous cooperative learning research is student ability. While there has been some variability between independent studies on cooperative learning, most conclude that cooperative learning methods equally benefit high, average, and low achievers when compared to counterparts in control groups (Slavin 1995; Wong & Wong, 1999). Students of varying ability appear to benefit from cooperative learning experiences when compared to traditional classroom situations.

How do students of varying ability respond to different kinds of cooperative learning experiences? Are high ability students better served in terms of achievement by certain cooperative learning models? What about low and moderate ability students and achievement when using different cooperative learning models? In discussing cooperative learning and low and moderate achievers, Gutierrez (1995) cautioned, “Simply devising student roles that are interactive within small-group settings does not guarantee success, especially among youngsters who are seriously disaffected by the schooling process” (p. 4). The implication is that student ability is a crucial element

when considering cooperative learning strategies to employ in the classroom. Research that helps educators understand achievement, ability level and specific cooperative learning models is essential.

The Global Workforce

Besides the obvious impact of cooperative learning on student academic achievement, the need for students to be prepared for a lifetime of learning and employment are strong reasons to employ cooperative learning methods within the classroom. The middle school years appear to be an especially poignant time to inculcate real-life and relevant experiences in the classroom. According to Jackson & Hornbeck (1989), “During early adolescence, young people begin to make decisions about their self-worth, the worthiness of others, and the value of education, health, work and citizenship” (p. 1). The need to instill teamwork, leadership, and social skills, especially towards the end of students’ formative years, is a compelling reason to employ cooperative learning in the middle school classroom.

Workplace dynamics have changed and evolved in recent years. According to Ravenscroft (1997), “Many businesses rely on teamwork” (p. 1). The increasing recognition of the importance of people skills for employees in the modern

workforce has lead to changes in the nature of work. Magney (1996) makes the following comment on workplace organization:

> The growing use of teamwork is part of the on-going reorganization of workplace relationships. Managerial theorists have for years been touting the value of employee participation and teamwork over traditional top-down control structures. And, increasingly, their ideas have been put into practice. (p. 564)

The premium placed on people skills (and the people which possess them) is not lost on human resource experts. Campus recruiters consider the ability to work well with others a critical skill set and one that is in high demand (Fellers, 1996; Ravenscroft, 1997). In short, collaboration skills are a necessity in the work place.

Business schools have now come to realize the importance of adding interpersonal skills to the curriculum in order to prepare students for the corporate world. According to Fisher (2007), “Wharton, Tuck, Chicago, the University of Virginia’s Darden, and Berkeley’s Haas School, among many others, have also started stressing teamwork and are paving more attention to ‘soft’ skills like listening to colleagues” (p. 33). The importance of promoting teamwork and bolstering interpersonal skills should not be lost on educators when considering using cooperative learning strategies in the classroom.

The opportunity for students to work with others in heterogeneous groups during the middle and secondary school years will help pave the way for them to be successful working adults in an increasingly diverse society. According to Wong & Wong (1988), “The global economy is an economy of diversity. It is only from working with a diversity of people that students will learn the skills needed in a world of diversity” (p. 252). Allowing students to consistently practice teamwork skills with a myriad of peers will give them relevant work-related experience in addition to improving academic achievement in the classroom.

Summary

Cooperative learning is a popular and effective teaching and learning strategy which was well-represented in the literature. The literature review disclosed that the Jigsaw II method was well suited for the social studies classroom. The literature review also unveiled the potential for structured dyads to be highly effective within a social studies context, given their high effect size on achievement in reading comprehension studies. The review of the literature also divulged that cooperative learning methods boost student self-esteem, are

developmentally appropriate and effective for all types of learners, and inculcate important teamwork skills that will assist them in the world of work.

The research methodology is presented in chapter 3. A quasi-experimental research design was chosen to compare the achievement effects of Jigsaw II and structured dyad treatments on student pre-and posttest scores. The quantitative study used a repeated-measures t test design to analyze student test data.

CHAPTER 3:

METHODS

The purpose of this quasi-experimental study was to compare two different cooperative learning models in terms of their effects on student achievement within a middle level social studies context. A quantitative methodology was employed to compare student achievement scores to determine if there is a statistically significant difference between the two cooperative learning models. The research questions and their corresponding hypotheses and variables are offered below:

Research Questions

1. What cooperative learning strategies (Jigsaw II and structured dyad) promote a significant difference in student academic achievement in a middle level social studies class?
2. Is there a significant difference in the academic achievement of middle level social studies students within gender subgroups using different cooperative learning strategies?

3. Is there a significant difference in the academic achievement of middle level social studies students within ability level subgroups using different cooperative learning strategies?

Hypotheses and Variables

1. The null hypothesis states that there is no significant difference between the academic achievement of 6th grade social studies students using Jigsaw II and structured dyad cooperative learning strategies. The alternative hypothesis states that there is a significant difference in the academic achievement of 6th grade social studies students using the Jigsaw II strategy as compared to the students using the structured dyad strategy. The independent variables are the cooperative learning strategies and the dependent variables are the differences in pre-and posttest scores.

2. The null hypothesis states that there is no significant difference between the academic achievement of 6th grade social studies students within gender subgroups using Jigsaw II and structured dyad cooperative learning strategies. The alternative hypothesis states that there is a significant difference in the academic achievement of

6th grade social studies students within gender subgroups using the Jigsaw II strategy as compared to the students using the structured dyad strategy. The independent variables are the cooperative learning strategies and the gender of the students. The dependent variables are the differences in pre-and posttest scores.

3. The null hypothesis states that there is no significant difference between the academic achievement of 6th grade social studies students within ability level subgroups using Jigsaw II and structured dyad cooperative learning methods. The alternative hypothesis states that there is a significant difference in the academic achievement of 6th grade social studies students within ability level subgroups using the Jigsaw II strategy as compared to the students using the structured dyad strategy. The independent variables are the cooperative learning strategies and the ability level of the students. The dependent variables are the differences in pre-and posttest scores.

This section addresses the rationale to employ a quantitative study and the study context. The participants were 6th grade social studies students at a school that served military dependents. The participants implemented

two different cooperative learning models over a 6 week period. A repeated-measures t test analysis compared unit pre-and posttest difference scores. The details of each of the aforementioned areas are discussed below.

Research Design

This quantitative study employed a quasi-experimental repeated-measures research design that compared the achievement effects of two different cooperative learning methods involving volunteer 6th grade social studies students. The study participants were drawn from the researcher's social studies classes, so a research design had to be chosen to reflect this reality. A quasi-experimental research design was selected for this study. According to Creswell (2003), "In *quasi-experiments*, the investigator uses control and experimental groups but does not randomly assign participants to groups (e.g., they may be intact groups available to the researcher)" (p. 167). The research design utilized a within-group (repeated-measures) design because all of the study participants experienced two different treatments (the different cooperative methods). There are a number of advantages to using a repeated-measures research design. According to Gravetter & Wallnau (2005), the repeated-measures design

typically requires fewer subjects, is well-suited for studying learning over time, and it eliminates problems caused by individual differences (p. 287). Other research designs were not considered due to the fact that they were either inappropriate (i.e., qualitative research design) or limiting (i.e., experimental research design) given the intent and the conditions inherent of the study. In regards to the use of an inferential statistical design, it was noted that the repeated-measures design was more appropriate than an independent-measures design due to the likelihood of a small sample size and for reasons previously mentioned in this section. The analysis of variance (ANOVA) was not considered because the main advantage of ANOVA is to compare two or more treatments (Gravetter & Wallnau, 2005). Because the study compared only two different cooperative learning strategies to each other using pre-and posttest difference scores within group and sub-groups, the t test was deemed the preferred test statistic. Overall, the quasi-experimental repeated-measures design was considered the most appropriate and effective research design for this study.

Role of the Researcher

The researcher, who is also the teacher of the participants, conducted all phases of the study; to include collecting and scoring the assessment instruments. The assessment data was scored via predetermined answer keys. The essay components were assessed via predetermined scoring rubrics.

The researcher is a career middle level educator, having taught primarily social studies at the middle level for 15 years. The researcher is fully certified in middle level education, and has a strong background in the social studies. The researcher has a bachelor’s degree in secondary social studies (history) education and a master’s degree in secondary social studies education. The researcher has been at the school involved in this study for 11 years. The researcher is the 6th grade social studies teacher of the student participants involved in this study. In order to minimize any possibility of coercion by the researcher, participants were routinely reminded of their rights and the researcher routinely solicited the support of the participants and their parents throughout the study.

Unit pre-and posttests were administered and collected for each history unit taught. Each respective history unit was taught utilizing a different cooperative learning method. In this study, all of the students in each of the sections of social studies taught by the researcher benefited from the treatments. However, only designated student participants involved in the study had their individual test scores used for data collection and analysis purposes.

Instrument

Two modified versions (a pre-and posttest) of two separate world history unit tests from the curriculum assessment booklet, “World Adventures in Time and Place” by McGraw-Hill (2001) were administered to the study participants. The tests consisted of 25 selected response questions (multiple-choice and matching), and one constructed response (short essay) question. Study participants took a pretest before each unit, and a posttest at the end of each unit. All students had been taught and practiced each respective cooperative model via an orientation unit which preceded the actual study unit in which the data was collected. The students were required to use a structured dyad cooperative learning model (a

researcher modified form of the *summary pairs* and *worksheet checkmates* strategies) patterned from Johnson, Johnson & Holubec's (1991) *learning together* exclusively for one complete unit, and then were required to use the Jigsaw II cooperative learning model exclusively during the other unit. Unit pre-and posttests comprised the data collection method because the study analyzed the achievement effects of the cooperative models involved therein.

Each test used in this study was comprised of 4 different parts. Part 1 of each test, which was comprised of 10 multiple-choice questions, concerns factual content from the unit. Each of these questions had four answer choices from which to choose from. Part 2 of each test was comprised of matching the descriptions of five key people to their names, respectively. Part 3 of each test concerned five multiple-choice questions dealing with geography skills. Each of these questions had three answer choices from which to choose from. Finally, Part 4 of each test concerned one short-paragraph response essay question. The tests had a total value of 40 points. Part 1 was worth 20 points. Part 2 was worth 10 points. Parts 3 and 4 were worth a total of 5 points each. Parts 1 and 2 were weighted more heavily in terms of point value due to the fact that

the curricular units being evaluated were history units, and parts 1 and 2 concerned the historical facts and key people of each respective unit of study. The geography skills and short-answer essay sections concerned application and analysis, both of which were considered higher-order thinking skills.

All of the assessment instruments used in this study are listed in the Appendix section. Raw test data is available by request from the researcher.

Participants and Study Context

A total of 57 (N = 57) student volunteers at a middle school that served a large number of students with military parents formed the study participants. A stratified non-random convenience sample (Creswell, 2003) was used. A stratified sample was sought to allow for each of the researcher's social studies classes to participate in the study as well as to increase the likelihood that the sample was representative of the 6th graders who attended the school. A convenience sample was employed because the researcher was not in control of the selection of the participants. The participants were student volunteers and parental permission was secured by the researcher for each participant in the study (see Appendix A).

The sampling procedure sought to include an equal number (*n* = 6) of students from each of six sections of 6th grade social studies, as well as an equal number of both male and female students from each section. The study design was driven by pragmatic concerns and expediency. The 6th grade student enrollment traditionally averages approximately 120 students each year. In a similar study by Graham (2005) in which cooperative learning methods were compared within a middle level social studies context at a small school, a total of thirty-two 6th and 7th grade students comprised the sample size. According to Gravetter & Wallnau (2005), "The repeated-measures design uses the subjects more efficiently because each individual is measured in both of the treatment conditions" (p. 287). The sample size for this study was calculated via a Sample Size Calculator (2005) for t tests, whereas a standard deviation σ of .10, a confidence level of n α=.05, power level of .50, and difference to detect (d) - .05 equated to a sample size of *n* = 31. Accordingly, a minimum of 36 participants comprised the sample size.

Procedure

Data was collected over the course of 6 weeks (3 weeks per unit) from six students from each of six sections of

6th grade social studies. A pretest was given before the beginning of each world history unit, and a posttest was given at the conclusion of the unit. Data from the unit tests were translated into composite scores which showed the difference between the pre-and posttest scores. The data was analyzed via a repeated-measures t test design.

Data Collection

Data was collected over the course of 6 weeks (3 weeks per unit) from at least six students from each of six sections of 6th grade social studies. A pretest was given before the beginning of each world history unit, and a posttest was given at the conclusion of the unit. Descriptive statistics (mean and standard deviation) were included for each unit pre-and post test to allow for an initial comparison of the data. Data from the unit tests was translated into composite scores which showed the difference between the pre-and posttest scores. This data was analyzed via a repeated-measures t test design. According to Gravetter & Wallnau (2005):

> In a repeated-measures study, we are interested in whether or not there is a systemic difference between the scores in the first treatment condition and the scores in the second treatment condition. The hypothesis test will use the difference scores obtained from a sample to evaluate the overall mean difference, μ_D, for the entire population. (pp. 279 – 280)

This study was conducted to determine whether or not there was a significant difference in student achievement when one cooperative learning method was compared with another. Sub-group data (gender and ability) was also analyzed, accordingly.

Data Analysis

Computer analysis of the data was conducted via the Statistical Package for the Social Sciences (SPSS) software 14.0 for Windows. A repeated-measures t test (α = .05; two-tailed) was used to determine if there was a significant difference in student achievement as concerned their composite unit test scores. The t test used pre-and post test composite scores to analyze the degree to which each cooperative method had impacted student achievement as compared to the other. The composite scores represented the mean difference between the pre-and post test scores, by category, for each cooperative method (i.e., all participants, gender, and ability, respectively). Descriptive statistics (mean and standard deviation) were generated to allow the reader to easily compare test results and comprehend the data.

Validity and Reliability

Unit pre-and posttests were used to measure student achievement for each cooperative learning method. Because the unit pre-and post-tests were the data collection instruments in this study, it was essential that they were both valid and reliable. Test validity concerned that the test measured what was intended to be measured. In this study, the researcher used carefully modified commercially constructed tests that accompanied the district-provided textbooks. The tests were slightly modified to better reflect the actual learning (content) of each unit in the study. According to Ary, Jacobs, & Razavieh (1996), content-related evidence of validity concerns “whether the items in a test represent the course and objectives as stated in the curriculum guides, syllabi, and texts” (p. 264). Test reliability concerned the degree of consistency with which the test measured what was intended to be measured. As such, the unit pre-and posttests needed to be similar in format and content. Consequently, test reliability was ensured by using the *equivalent forms technique* (Ary, Jacobs, & Razavieh; 1996) for constructing the unit pre-and post-tests; the tests were uniform in

format, and sampled similar content areas and cognitive levels.

Ethical Protection of Participants

The rights of the participants in this study were carefully considered and rigorously enforced. The school system with which the researcher is employed mandated that certain procedures and protocols were met to ensure the ethical protection of participants. Parental consent forms and student assent forms were required of all participants involved in this study. The individual identities of each of the study participants were carefully safeguarded; neither the name of the school, its exact location, nor individual names were used in this study. All student data was carefully monitored by the researcher and was either secured in locked physical storage containers or protected in electronic form via the use of passwords and other safeguards to ensure that the personal information of the participants was not compromised.

Summary

This study sought to compare two different cooperative learning models in terms of their effects on student achievement within a middle level social studies context. Fifty-seven student (N = 57) volunteers comprised the

sample population of the study. A quantitative methodology was employed to compare student achievement scores to determine if there was a statistically significant difference between the two cooperative learning models. A repeated-measures t test design was employed to analyze the test data. Modified commercially constructed social studies unit tests comprised the pre-and posttests used in this study. The research methodology was carefully considered and appropriate for this study.

Chapter 4 discusses the results of the study. The study revealed that there was a significant difference in the treatment effects of the structured dyad and Jigsaw II models for all participants, the males, and the high and average ability students. The results of the study indicated that there was not a significant difference in the treatment effects of the structured dyad and Jigsaw II models for the females and low ability students. The details concerning the results of the study are presented in the next chapter.

CHAPTER 4:

RESULTS

The purpose of this study was to determine if there is a significant difference in the academic achievement scores of 6th grade social studies students using structured dyad and Jigsaw II cooperative strategies. The academic achievement scores of gender and ability level subgroups using structured dyad and Jigsaw II were examined. A pseudoexperimental design used social studies history unit pre-and posttest scores to measure the efficacy of each respective cooperative method. The Statistical Package for the Social Sciences (SPSS) was used to conduct repeated-measure t test analysis to determine whether there was a significant difference between treatment groups. This chapter first describes the sample and then addresses each of the three research questions.

Description of the Sample

The researcher’s school had a 6th grade student population of 111 students at the beginning of this study. Seventy-six students volunteered to participate in the study. Of the 76 students, 19 were excluded from the study due to unavailable standardized test scores, missing

unit test scores, or disenrollment from the school. Twenty-seven participants in this study were male and 30 female. Standardized test scores were used to categorize students into high, average, and low ability groups. Specifically, the social studies sub-test of the standardized test was used to assess student ability. Students in the high ability group have a social studies score in the first quartile, or a score of 76 to 100. Students in the average ability group have a social studies score in the second or third quartile, or a score of 26 to 75. Students in the low ability group have social studies score in the fourth quartile, or a score of 1 to 25. Twenty-two students comprised the high ability group in this study. Thirty-one students formed the average ability group in this study. Finally, four students were placed in the low ability group.

Question 1: Structured Dyad and Jigsaw II

What cooperative learning strategies (structured dyad and Jigsaw II) promote significantly greater student academic achievement in a middle level social studies class was the first question examined in this study. Tables 2 and 3 show the means, standard deviations, and results of the null hypothesis: there is no significant difference between

the academic achievement of 6th grade social studies students using structured dyad and Jigsaw II cooperative learning strategies.

Table 2

Difference in Scores by Structured Dyad and Jigsaw II Groups

	Pretest		Posttest		Difference	
Group	***M***	***σ***	***M***	***σ***	***M***	***σ***
s. dyad (n = 57)	14.07	5.40	29.05	6.39	14.98	6.86
Jigsaw II (n = 57)	17.79	4.42	28.16	6.17	10.37	5.65

Fifty-seven students were involved in this study. The structured dyad treatment resulted in a mean pretest score of 14.07 and a standard deviation of 5.40. The structured dyad posttest resulted in a mean of 29.05 and a standard deviation of 6.39. The structured dyad difference score mean was 14.98 and a standard deviation of 6.86. The Jigsaw II treatment resulted in a mean pretest score of 17.79 and a standard deviation of 4.42. The Jigsaw II posttest resulted in a mean of 28.16 and a standard deviation of 6.17. The Jigsaw II difference score mean was 10.37 and a standard deviation of 5.65. The treatment effect was 14.98

– 10.37 = 4.61 points. The statistical analysis in Table 2 shows that difference in the pre-and posttest means of the structured dyad and Jigsaw II treatments was significantly more than would be expected by chance with alpha set at .05, $t(56) = 4.07$, p = .000.

Table 3

Repeated-Measures t test Analysis of Scores for Structured Dyad and Jigsaw II Treatment Groups

	t score	*df*	Significance
Difference	4.07	59	.000

Question 2: Structured Dyad and Jigsaw II and Gender

This study examined a second question, is there a significant difference in the academic achievement of middle-level social studies students within gender subgroups using different cooperative learning strategies? Means, standard deviations, and results of the null hypothesis: there is no significant difference in the academic achievement of 6th grade social studies students within gender subgroups using structured dyad and Jigsaw II cooperative learning strategies are shown in Tables 4 through 7.

Table 4

Difference in Scores of Males by Structured Dyad and Jigsaw II Groups

	Pretest		Posttest		Difference	
Group	***M***	**σ**	***M***	**σ**	***M***	**σ**
S. Dyad (n = 27)	14.30	5.14	31.15	5.30	16.85	7.04
Jigsaw II (n = 27)	18.70	4.61	28.33	6.69	9.63	5.78

Twenty-seven students comprised the male subgroup of this study. The structured dyad treatment resulted in a mean pretest score of 14.30 and a standard deviation of 5.14. The structured dyad posttest resulted in a mean of 31.15 and a standard deviation of 5.30. The structured dyad difference score mean was 16.85 and a standard deviation of 7.04. The Jigsaw II treatment resulted in a mean pretest score of 18.70 and a standard deviation of 4.61. The Jigsaw II posttest resulted in a mean of 28.33 and a standard deviation of 6.69. The Jigsaw II difference score mean was 9.63 and a standard deviation of 5.78. The treatment effect was 16.85 – 9.63 = 7.22 points. The statistical analysis in Table 4 shows that difference in the pre-and posttest means

of the structured dyad and Jigsaw II treatments for males was significantly more than would be expected by chance with alpha set at .05, $t(26) = 3.78$, $p = .001$.

Table 5

Repeated-Measures t test Analysis of Scores for Males in Structured Dyad and Jigsaw II Treatment Groups

	t score	*df*	Significance
Difference	3.78	26	.001

Table 6

Difference in Scores of Females by Structured Dyad and Jigsaw II Groups

	Pretest		Posttest		Difference	
Group	***M***	**σ**	***M***	**σ**	***M***	**σ**
S. Dyad (n = 30)	13.87	5.71	27.17	6.78	13.30	6.35
Jigsaw II (n = 30)	16.97	4.15	28.00	5.78	11.03	5.55

Thirty students formed the female subgroup of this study. The structured dyad treatment resulted in a mean pretest score of 13.87 and a standard deviation of 5.71. The structured dyad posttest resulted in a mean of 27.17 and a standard deviation of 6.78. The structured dyad difference score mean was 13.30 and a standard deviation of

6.35. The Jigsaw II treatment resulted in a mean pretest score of 16.97 and a standard deviation of 4.15. The Jigsaw II posttest resulted in a mean of 28.00 and a standard deviation of 5.78. The Jigsaw II difference score mean was 11.03 and a standard deviation of 5.55. The treatment effect was 13.30 – 11.03 = 2.27 points. The statistical analysis in Table 6 shows that difference in the pre-and posttest means of the structured dyad and Jigsaw II treatments for females was not significantly more than would be expected by chance with alpha set at .05, $t(29) = 1.94$, p = .062.

Table 7

Repeated-Measures t test Analysis of Scores for Females in Structured Dyad and Jigsaw II Treatment Groups

	t score	*df*	Significance
Difference	1.94	29	.062

Question 3: Structured Dyad and Jigsaw II and Ability Level

This study examined a third question, is there a significant difference in the academic achievement of middle level social studies students within ability level subgroups using different cooperative learning strategies? Means, standard deviations, and results of the null hypothesis: there is no significant difference in the academic achievement of 6th grade social studies students within ability level subgroups using structured dyad and Jigsaw II cooperative learning strategies are shown in Tables 8 through 13.

Table 8

Difference in Scores of High Ability Students by Structured Dyad and Jigsaw II Groups

	Pretest		Posttest		Difference	
Group	***M***	**σ**	***M***	**σ**	***M***	**σ**
S. Dyad (n = 22)	16.41	5.03	32.64	6.03	16.23	7.64
Jigsaw II (n = 22)	20.32	4.44	31.05	3.77	10.73	4.29

Twenty-two students formed the high ability subgroup in this study. The structured dyad treatment resulted in a mean pretest score of 16.41 and a standard deviation of

5.03. The structured dyad posttest resulted in a mean of 32.64 and a standard deviation of 6.03. The structured dyad difference score mean was 16.23 and a standard deviation of 7.64. The Jigsaw II treatment resulted in a mean pretest score of 20.32 and a standard deviation of 4.44. The Jigsaw II posttest resulted in a mean of 31.05 and a standard deviation of 3.77. The Jigsaw II difference score mean was 10.73 and a standard deviation of 4.29. The treatment effect was 16.23 – 10.73 = 5.50 points. The statistical analysis in Table 8 shows that difference in the pre-and posttest means of the structured dyad and Jigsaw II treatments for high ability students was significantly more than would be expected by chance with alpha set at .05, $t(21) = 3.34$, $p = .003$.

Table 9

Repeated-Measures t test Analysis of Scores for High Ability Students in Structured Dyad and Jigsaw II Treatment Groups

	t score	df	Significance
Difference	3.34	21	.003

Table 10

Difference in Scores of Average Ability Students by Structured Dyad and Jigsaw II Groups

	Pretest		Posttest		Difference	
Group	***M***	**σ**	***M***	**σ**	***M***	**σ**
S. Dyad (n = 31)	13.13	5.17	27.61	5.12	14.48	6.33
Jigsaw II (n = 31)	16.87	3.28	27.71	5.52	10.84	6.07

Thirty-one students comprised the average ability subgroup of this study. The structured dyad treatment resulted in a mean pretest score of 13.13 and a standard deviation of 5.17. The structured dyad posttest resulted in a mean of 27.61 and a standard deviation of 5.12. The structured dyad difference score mean was 14.48 and a standard deviation of 6.33. The Jigsaw II treatment resulted in a mean pretest score of 16.87 and a standard deviation of 3.28. The Jigsaw II posttest resulted in a mean of 27.71 and a standard deviation of 5.52. The Jigsaw II difference score mean was 10.84 and a standard deviation of 6.07. The treatment effect was 14.48 – 10.84 = 3.64 points. The statistical analysis in Table 10 shows that

difference in the pre-and posttest means of the structured dyad and Jigsaw II treatments for average ability students was significantly more than would be expected by chance with alpha set at .05, $t(30) = 2.37$, $p = .024$.

Table 11

Repeated-Measures t test Analysis of Scores for Average Ability Students in Structured Dyad and Jigsaw II Treatment Groups

	t score	df	Significance
Difference	2.37	30	.024

Table 12

Difference in Scores of Low Ability Students by Structured Dyad and Jigsaw II Groups

	Pretest		Posttest		Difference	
Group	***M***	**σ**	***M***	**σ**	***M***	**σ**
S. Dyad (n = 4)	9.75	2.06	18.00	4.69	8.25	3.30
Jigsaw II (n = 4)	10.25	0.50	15.75	6.18	4.75	7.37

Four students formed the low ability subgroup of this study. The structured dyad treatment resulted in a mean pretest score of 9.75 and a standard deviation of 2.06. The structured dyad posttest resulted in a mean of 18.00 and a standard deviation of 4.69. The structured dyad difference score mean was 8.25 and a standard deviation of 3.30. The Jigsaw II treatment resulted in a mean pretest score of 10.25 and a standard deviation of 0.50. The Jigsaw II posttest resulted in a mean of 15.75 and a standard deviation of 6.18. The Jigsaw II difference score mean was 4.75 and a standard deviation of 7.37. The treatment effect was 8.25 – 4.75 = 3.50 points. The statistical analysis in Table 12 shows that difference in the pre-and posttest means of the structured dyad and Jigsaw II treatments for low ability students was not significantly more than would be expected by chance with alpha set at .05, $t(3) = .968$, $p = .405$.

Table 13

Repeated-Measures t test Analysis of Scores for Low Ability Students in Structured Dyad and Jigsaw II Treatment Groups

	t score	df	Significance
Difference	.968	3	.405

Summary

This chapter presents data to determine the efficacy of the structured dyad and Jigsaw II treatments in this study. Of the 57 students who participated in the study, males comprised 47% of the study participants and females 53%. Additionally, 39% of the students were considered high ability social studies students, 54% comprised the average ability social studies group, and 7% formed the low ability social studies group. SPSS was used to conduct repeated-measure t test analysis on group scores described in the three hypotheses related to the three research questions: (a) structured dyad and Jigsaw II treatment groups; (b) structured dyad and Jigsaw II treatments by gender subgroup; and (c) structured dyad and Jigsaw II treatments by ability level subgroup. Results of all hypotheses show significant differences in group treatment scores for 6th grade social studies students overall, as well as the male, high ability, and average ability subgroups. The female and low ability subgroups did not show significant differences in group treatment scores.

Chapter 5 addresses the findings of the study. One of the findings of the study is that cooperative learning strategies which use small groups which are highly

structured appear to impact achievement for 6th grade social studies students more than strategies which employ larger groups in a less structured format. Implications of the study are that social studies teachers are encouraged to use cooperative learning strategies in the classroom and that future studies need to consider comparing other cooperative learning models with each other, among others. The details of the findings of the study are presented in the next chapter.

CHAPTER 5:

FINDINGS

There is a problem in middle and secondary level social studies education. Specifically, the problem is a lack of understanding of different cooperative learning methods and their effects on student achievement. This study contributes to the body of knowledge needed to address this problem by comparing the achievement effects of two divergent models of cooperative learning within a middle level social studies context.

Chapter 5 offers a summary of chapters 1 – 3; an interpretation of the findings, including the research questions, followed by the outcomes, theoretical perspective, and social significance. The chapter ends with recommendations, reflection of researcher’s experience, and the conclusion. A summary of the findings is offered below.

Summary of Findings

Cooperative learning is an effective teaching and learning strategy that has been extensively researched. It has been proven to be superior to traditional (teacher-

centered) forms of instruction in terms of student achievement (Slavin, 1991; Mills & Durden, 1992). Not much is known, however, about whether some cooperative learning models are more efficacious than others within certain contexts. A review of the literature indicated that the Jigsaw II cooperative strategy was well-suited for 6th grade social studies students, given the fact that narrative materials are often used. Structured dyads (scripted-pair learning) also appeared to hold promise for social studies students due to the reportedly high effect sizes on achievement in studies of reading comprehension.

This study compared two divergent forms of cooperative learning (structured dyad and Jigsaw II) in order to determine if there was a significant difference in student achievement scores within a 6th grade social studies context. Table 2, following, illustrates the group-study structure differences between Jigsaw II and the form of structured dyad used in this study.

Table 14

Comparing Jigsaw II and Structured Dyad Methods

	Jigsaw II	Structured Dyad
Researcher(s)	Slavin	Johnson & Johnson
Group Size	4 members	2 members
Group Goals	Team Rewards	Group Grades
Individual Accountability	Quizzes	N/A
Social Skills	N/A	Yes
Group Feedback	N/A	Yes
Learning Script	N/A	Yes

Note. "Structured dyad" in this case refers to two complementary forms of paired learning methods from the l*earning together* series: s*ummary pairs* and *worksheet checkmates*.

A quasi-experimental design was employed to compare difference scores from unit pre-and posttests of 6th grade volunteer social studies students.

This quantitative study used the history unit pre-and posttest scores of 57 middle school students who implemented two divergent cooperative learning strategies (structured dyad and Jigsaw II). The repeated-measures t test analysis was conducted to test the pre-and posttest difference scores of the groups in each research question:

1. What cooperative learning strategies (Jigsaw II and structured dyad) promote a significant difference in student academic achievement in a middle level social studies class?
2. Is there a significant difference in the academic achievement of middle level social studies students within gender subgroups using different cooperative learning strategies?
3. Is there a significant difference in the academic achievement of middle level social studies students within ability level subgroups using different cooperative learning strategies?

The findings pertaining to the aforementioned research questions are offered below.

The findings of the study indicate that the structured dyad treatment resulted in significantly higher achievement scores for 6th grade social studies students than the Jigsaw II treatment. A finding of the study revealed that male 6th grade students had significantly higher achievement scores with the structured dyad model as compared to the Jigsaw II model. The study also showed that the female 6th grade student subgroup did not have

significantly higher achievement scores with the structured dyad model as compared to the Jigsaw II model. In regards to the student ability level subgroups, a finding of the study revealed that two of the three student ability level subgroups had significantly greater achievement scores using the structured dyad model as compared to the Jigsaw II model. Both the high and average ability student subgroups performed significantly better using the structured dyad model. The low ability student subgroup did not have significantly higher achievement scores using the structured dyad model compared to the Jigsaw II model.

Interpretation of the Findings

The initial obvious finding of the study is the modified test instruments employed. The curriculum package used by the researcher included unit tests which accompanied the textbook used, as well as other curricular materials. The unit tests that were used in this study were modified by the researcher to be more attuned to the actual learning going on in the classroom. Additionally, pre-and posttests were needed for each cooperative learning unit in order to assess student achievement performance. The commercially prepared curriculum assessments did not have pre-and posttests with which to employ. Test item

reliability data is not available for either the original unit tests or for the researcher modified tests. The lack of test reliability data is a factor when considering the results of the study.

Another finding of the study is the sample size of the low ability student subgroup. While the overall study had 57 student participants, only 4 students comprised the low ability student subgroup. Results may have differed if more low ability student scores had been included in the study.

An additional finding of the study is the amount of student studying done in preparation for the unit posttests. The study revolved around classroom learning and the two cooperative learning strategies employed. The amount of individual student preparation for the unit posttests may have influenced the posttest scores.

Another important finding is the impact of student absences during the course of the study. Student test data may have been effected due to the fact that some students were absent during some of the instructional phases of this study. Consistent student participation during the length of the study may have affected the outcome.

One of the major findings of the study supports the research that shows structured dyads have a higher effect

size than Jigsaw II on studies concerning cooperative learning and student achievement. The study indicates that the structured dyad treatment resulted in significantly higher achievement scores for 6th grade social studies students than the Jigsaw II treatment.

This study examined student gender subgroups to determine if either cooperative model in the study resulted in significantly higher achievement scores than the other along gender lines. A significant finding of the study revealed that male 6th grade students had significantly higher achievement scores with the structured dyad model as compared to the Jigsaw II model. The study also showed that the female 6th grade student subgroup did not have significantly higher achievement scores with the structured dyad model as compared to the Jigsaw II model. The results of this study in terms of supporting the research were mixed.

Both boys and girls performed better using the structured dyad model (which was expected), but only boys performed significantly better. According to the research, boys seemed to prefer a louder, more competitive setting, while girls tend to prefer quieter settings which emphasize consensus-building (Kirschenbaum & Boyd, 2007).

Interestingly, the boys did significantly better using the small group-high structure cooperative model while the girls did not do significantly better using the same structure. The frequency with which girls worked with girls while using the Structured Dyad model might be a factor. According to a research study by Ding & Harskamp (2006) high school girls in China performed significantly better in female-female dyads than they did in mixed gender dyads, and that boys outperformed girls in mixed gender dyads. The fact that girls mature earlier than boys may also be a factor. The girls could more easily adapt to either model because of greater maturity than the boys, who found the small group, high structure cooperative format more effective for their maturity level.

In regards to the student ability level subgroups, a major finding of the study revealed that two of the three student ability level subgroups had significantly greater achievement scores using the structured dyad model as compared to the Jigsaw II model. Both the high and average ability student subgroups performed significantly better using the structured dyad model. The low ability student subgroup did not have significantly higher achievement scores using the structured dyad model compared to the

Jigsaw II model. In terms of supporting the research, all student ability subgroups performed better using the structured dyad model than the Jigsaw II model.

One reason the high and average ability students may have done significantly better using the structured dyad model is attributed to its emphasis on summarizing during the reading phase. Because of their demonstrated competence (as it pertains to the standardized test subtest scores used to categorize the students into ability level subgroups) the high and average ability students more easily reinforced their individual understanding of the material than the low ability students, who did not possess the corresponding subject area and reading competencies.

Social Significance

An overarching and significant finding of the study demonstrates that both cooperative learning models employed in the study were effective in improving student achievement scores across all categories. This study is a catalyst for middle level social studies teachers to consider implementing cooperative learning in their classrooms, or to encourage them to consider alternative cooperative learning methods in their teaching. In addition to improving learning for all students, cooperative

learning opportunities allow students to develop collaborative skills that will serve them well as adults in a global workforce. Ultimately, social studies classrooms are in a position to be the epicenter of an educational reform wave that can transform schools into communities of learning. As schools become communities of learning, the possibility of transforming educational practices across communities, states, and nations becomes more likely. Middle level social studies educators should not hesitate in employing cooperative learning methods in their classrooms. Additional research concerning cooperative learning within middle and secondary level social studies contexts is encouraged.

Recommendations

Cooperative learning is a well-researched teaching and learning strategy which is well-suited for the middle level social studies classroom. Apparently, either cooperative learning methods are not utilized as often as they should be in middle level social studies contexts, or the results of their use are not frequently reported. This study indicated that 6th grade social studies students had significantly higher achievement scores using the structured dyad cooperative model as compared to the Jigsaw

II cooperative model. The study also indicated that 6th grade boys and students of high and average ability levels had significantly higher achievement scores using the structured dyad model. Girls and low ability students did not have significantly higher achievement scores with the structured dyad method, although their scores were higher using the structured dyad method as compared to the Jigsaw II method. The following eight recommendations are proposed for future studies based on the “Review of Literature” and analysis of data in this study:

1. Future studies should replicate this study with a true experimental design. This convenience sample was comprised of 6th grade social studies students who volunteered to participate. A true experimental design where participants are assigned to the treatment groups would be the most desirable method to help mitigate the effects of confounding variables.

2. Additional research should use a larger (and more varied) sample to better account for a typical 6th grade student population. The 6th grade student participants in this study were primarily U.S. military dependents who attended the researcher’s school. Future studies are

encouraged to utilize larger student samples incorporating a mix of grade levels, schools, and locales. Replicating this study with a larger, more varied sample could provide invaluable information.

3. This study took lasted for approximately three months (November, 2008 – January, 2009). The length of the study could have been a factor in the outcome. A longer study incorporating more instructional units may have an effect on the outcome.

4. The researcher could be a variable in the study results. A single 6th grade social studies teacher implemented the cooperative methods used in the study in his classroom. Another teacher (or teachers) of differing gender, personal, or professional backgrounds might have influenced the results of the study.

5. Other studies could compare different cooperative learning models with each other in a social studies context to see if there is a significant difference in student achievement.

6. Additional studies could compare combinations of cooperative learning methods with a different cooperative

method (or combination of methods) to determine if there is a significant difference in student achievement.

7. Future studies are encouraged to investigate the effects of different cooperative learning methods on students from different cultural contexts and nationalities.

8. Other studies could investigate other reasons to employ certain cooperative learning models in a classroom besides that of student achievement. Student preference, student motivation, ease-of-use, ease-of-preparation, and other factors are considerations as to whether or not to utilize certain cooperative methods over others in the classroom.

Reflection on Researcher's Experience

This study was both rewarding and informative. The rewards are derived from the synthesizing of the roles of teacher and researcher in this study. Teaching the students the different cooperative methods and witnessing the processes under which they learned was fascinating. As the researcher, modifying the assessment instruments, collecting the data, and synthesizing and analyzing the information offered a different perspective on the experience. Overall, the addition of the role of researcher helped to bring the teaching experience full-circle. The

information gained reinforced the value and use of classroom practices already in use, as well as validating previous research findings concerning cooperative learning. The experience of being a teacher-researcher was found to be both complementary and natural.

Conclusion

There are a myriad of possibilities for future research studies concerning cooperative learning and social studies education. Social studies teachers (and all educators) have an obligation to employ cooperative learning in their classrooms due to the impact that it has on student achievement. Other noteworthy reasons for using cooperative learning models in the classroom are to enhance student motivation, improve self-esteem, and instill a sense of belonging. In regards to 6th grade social studies students, the structured dyad method resulted in significantly higher student achievement than the Jigsaw II method. Sixth grade social studies teachers are advised to consider scripted pair learning when considering cooperative learning opportunities for their students. The group-study structure that appears to be better suited for young middle school social studies students engaged in

cooperative learning employs small groups that are highly structured in terms of student interaction.

Social studies teachers can pave the way to help transform their schools into communities of learning. Instilling a sense of shared responsibility for one's learning, as well as the learning of others, can be the impetus of an educational reform wave that can change society, and the world. The impetus for social change starts with a single classroom teacher willing to experiment with cooperative learning as a way to improve student learning. Once a teacher experiences the positive impact that cooperative learning has on students, the greater the likelihood that that teacher will encourage the use of cooperative learning to his or her peers. The advantages of employing cooperative learning as a vehicle for classroom learning in the short-term and enhancing employment prospects and life-long learning in the long-term cannot be ignored.

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APPENDIX A: IRB APPROVAL NUMBER
10-27-08-0320529

APPENDIX B: APPROVAL LETTER TO CONDUCT RESEARCH STUDY

October 28, 2008

Jeffrey Niemi

Dear Mr. Niemi,

Your research, "A Comparison of Cooperative Learning Models in Middle-Level Social Studies" has been approved by Research Committee, the Director's Office, and the Walden University IRB.

This letter permits you to conduct your research as proposed, which includes collecting pre and post test Social Studies data from 6th grade students. Any additional information you request from schools or individuals or any deviations from your original proposal should be cleared through Permission from does not compel any individual(s) from participation in the research; participation by individuals is strictly voluntary. This includes the student data you are proposing to use for your research – while student participation in the assignment may be a class requirement, students must be given the option to have their test data used for research purposes.

Please note, as specified in the research agreement. you may not refer to the specific school, district, or school system in any way in any written reports generated from this research, including your dissertation. You may state only that the study was conducted in a school system that serves a large number of children with military parents. There must also not be any association with on surveys, letters, documents, etc. (e.g. letterhead, name of etc.).

A final electronic copy of your research report is to be submitted to Research and Evaluation Branch via email or regular mail. Best of luck with your research, if you have any further questions please feel free to contact me.

Please contact me via email or at if you have any further questions.

Sincerely,

Sandra D. Embler, Ph.D.
Chief, Research and Evaluation

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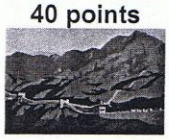
APPENDIX E: STRUCTURED DYAD UNIT PRETEST

Ch. 7 Pre Test
Ancient China
40 points



Name: _____ Period: _____
Date: _____

Part 1: Content (20 pts. @ 2 pts. each)
Multiple Choice; Circle the letter of the correct response.

1. The first Chinese civilization began next to which landform?
   A. Yangtze River
   B. Tibetan Plateau
   C. Gobi Desert
   D. Huang River

2. How does loess-silt help farmers?
   A. It is a fine, rock-free, and fertile soil.
   B. It clogs canals and drainage pipes.
   C. It makes fishing more difficult due to the muddy water.
   D. NONE OF THE ABOVE.

3. The Shang dynasty ruled from _____.
   A. 221- 206 B.C.
   B. 1700 – 1100 B.C.
   C. 206 B.C. – 220 A.D.
   D. NONE OF THE ABOVE

4. One of the achievements of the Shang dynasty was (the) _____.
   A. conquest of the Mongol empire
   B. building of the great pyramids of Asia
   C. creation of a writing system
   D. NONE OF THE ABOVE

5. The Q'in dynasty ruled from _____.
   A. 221 – 206 B.C.
   B. 1700 – 1100 B.C.
   C. 206 B.C. – 220 A.D.
   D. NONE OF THE ABOVE

6. One of the achievements of the Q'in dynasty was (the) _____.
   A. Creation of the Great Wall of China.
   B. Unification of China under a strong central government.
   C. Creation of a Clay Army of thousands of warriors..
   D. ALL OF THE ABOVE

7. The Han dynasty ruled from _____.
   A. 221 – 206 B.C.
   B. 1700 – 1100 B.C.
   C. 206 B.C. – 220 A.D.
   D. ALL OF THE ABOVE

8. Which of the following ideas are related to Confucianism?
   A. Respect within the family.
   B. The best defense is a good offense.
   C. All good things must come to an end.
   D. ALL OF THE ABOVE.

9. One of the achievements of the Han dynasty was (the) _____.
   A. invention of paper
   B. giving government jobs to educated people
   C. creation of the seismograph
   D. ALL OF THE ABOVE

10. The idea that each emperor received a right to rule from the gods was known as (the) _____.
   A. Mandate of Heaven
   B. Magna Carta
   C. Golden Rule
   D. Great Compromise

Part 2: People (10 pts. @ 2 pts. each)
Matching: Pair up the people or person with their description.

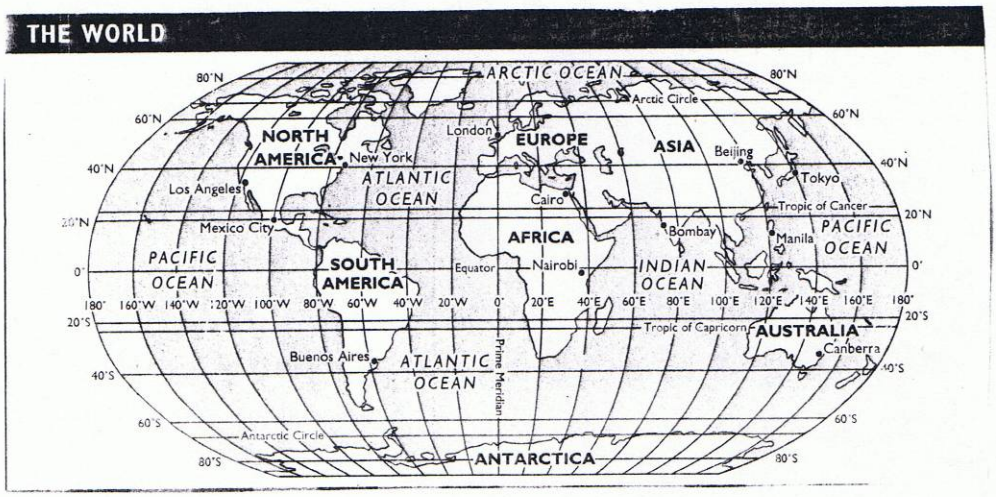
Shihuangdi	Confucius	Noble	Han Gaozu	King

1. This teacher said that rulers must be wise and good, just as their subjects must be respectful. _____
2. This person would be in charge of a town during the Shang period. _____
3. China's first emperor is remembered for his harsh rule. _____

4. This person was at the top of the social pyramid during the Shang period. _____

5. This general was originally a farmer before he led rebel armies to overthrow the Q'in dynasty. _____

Part 3: Skills (5 pts. @ 1 pt. each)
Use the map to answer the questions. Circle the letter of the correct response.



1. What are the lines that run east and west on the map called?
   a. latitude lines b. polar lines c. longitude lines

2. Longitude lines measure distance in degrees east and west of this.
   a. equator b. prime meridian c. Western Hemisphere

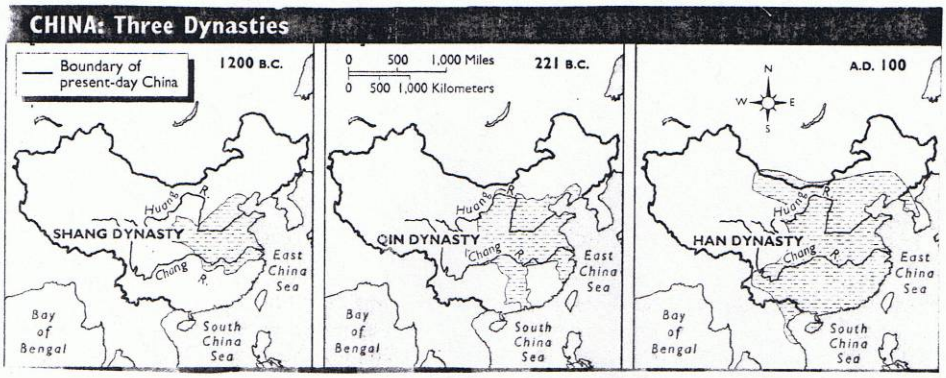
3. On the grid above, which latitude line is closest to Mexico City?
   a. 0 degrees b. 40 degrees N. c. 30 degrees N.

4. What does longitude line, or meridian, 20 degrees E. run through?
   a. three continents b. North America c. three oceans

5. Which city is nearest to 40 degrees N., 120 degrees W.?
   a. Los Angeles b. Beijing c. Tokyo

Part 4: Writing (5 pts.)
Write a short paragraph to answer the question below.

The three maps below make it clear that the growth of China was tied to control of the Huang and Chang rivers. Why was control of the rivers so important?



APPENDIX F: STRUCTURED DYAD UNIT POSTTEST

Ch. 7 Post Test
Ancient China
40 points

Name: _____ Period: _____
Date: _____

Part 1: Content (20 pts. @ 2 pts. each)
Multiple Choice; Circle the letter of the correct response.

1. The Huang River's summer floods watered the _____, one of China's best farming regions.
   A. Gobi Desert
   B. Steppes
   C. Tibetan Plateau
   D. North China Plain

2. Chinese farmers used _____ to hold back the waters of the Huang.
   A. canals
   B. levees
   C. ponding basins
   D. NONE OF THE ABOVE

3. The _____ dynasty started about 1,700 B.C. along the Huang River.
   A. Shang.
   B. Zhou
   C. Han
   D. Ming

4. The ability to use bronze was one of the achievements of the _____ dynasty.
   A. Shang
   B. Zhou
   C. Han
   D. Ming

5. The _____ dynasty ruled China from 221 – 206 B.C.
   A. Shang.
   B. Q'in.
   C. Han
   D. Tang

6. During the _____ dynasty, a single system of money was created to be used throughout the empire.
   A. Tang
   B. Zhou.
   C. Q'in
   D. Han

7. The Great Wall of China is an achievement linked to the _____ dynasty.
   A. Tang
   B. Zhou
   C. Q'in.
   D. Han

8. The _____ dynasty ruled from 206 B.C. – 220 A.D.
   A. Shang
   B. Han
   C. Tang
   D. Zhou.

9. During the _____ dynasty knowledge was emphasized. The seismograph was invented during this time.
   A. Shang
   B. Han
   C. Tang
   D. Zhou

10. During _____ times, the government would be fairer because it focused on the teachings of Confucius.
   A. Shang
   B. Han
   C. Tang
   D. Zhou

Part 2: People (10 pts. @ 2 pts. each)
Matching: Pair up the people or person with their description.

Han Gaozu	Shihuangdi	Nobles	Oracles	Farmers

1. This group was further weakened by the creation of schools for government workers during Han times. _____

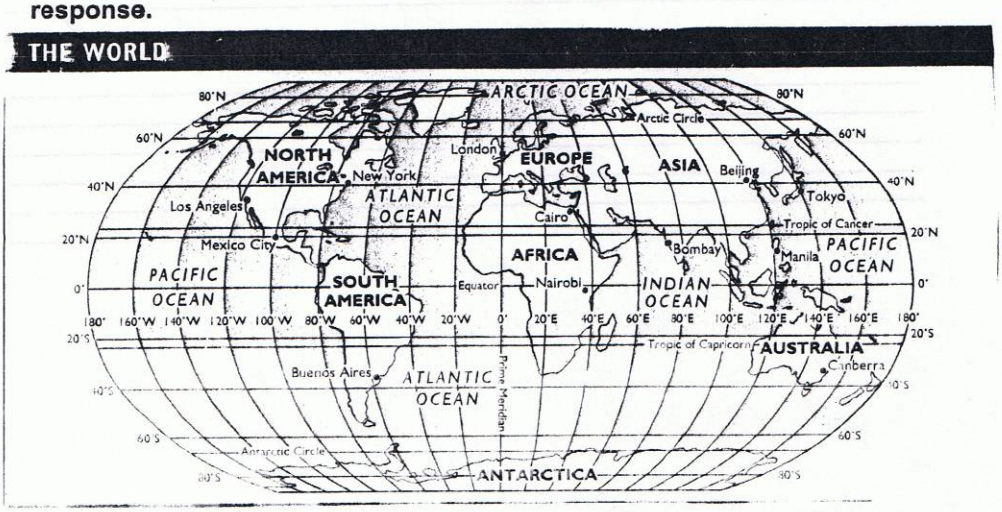
2. These people would predict the future using the shoulder bones of animals. _____

3. This group was used as forced laborers during the Q'in dynasty. _____

4. This person standardized the system of weights and measures during his time as emperor. _____

5. This person replaced Q'in as emperor. His dynasty would rule more fairly than those before it. _____

Part 3: Skills (5 pts. @ 1 pt. each)
Use the map to answer the questions. Circle the letter of the correct response.



1. What are the lines that run north and south on the map called?
   a. latitude lines b. polar lines c. longitude lines

2. Latitude lines measure distance in degrees north and south of this.
   a. equator b. prime meridian c. Western Hemisphere

3. On the grid above, which longitude line is closest to Mexico City?
   a. 120 degrees W. b. 140 degrees E. c. 100 degrees W.

4. What does the latitude line, or parallel, 60 degrees S. run through?
   a. three continents b. Antarctica c. three oceans

5. Which city is nearest to 40 degrees N., 120 degrees E.?
   a. Los Angeles b. Beijing c. Tokyo

Part 4: Writing (5 pts.)
Write a short paragraph to answer the question below.

Explain how the government was organized during the Han dynasty.

APPENDIX G: JIGSAW II UNIT PRETEST

Ch. 4 Pre Test
Ancient Egypt
40 points

Name: _____ Period: _____
Date: _____

Part 1: Content (20 pts. @ 2 pts. each)
Multiple Choice; Circle the letter of the correct response.

1. Egypt's geography consists mostly of _____.
   A. plains
   B. mountains
   C. deserts
   D. swamps

2. Egyptian farmers used irrigation to _____.
   A. water their crops.
   B. make the soil more fertile.
   C. control flood waters.
   D. travel among villages.

3. Which of the facts below describe the OLD KINGDOM (3,100 – 2,000 B.C.) period of ancient Egypt?
   A. The great pyramids were built.
   B. The Hyksos conquered part of Egypt.
   C. Egypt became an empire.
   D. NONE OF THE ABOVE.

4. During the OLD KINGDOM (3,100 – 2,000 B.C.), Egypt's economy was based upon _____.
   A. manufacturing
   B. agriculture
   C. tourism
   D. tribute

5. During the MIDDLE KINGDOM (2,100 – 1,700 B.C.), which of the following occurred?
   A. Hieroglyphics were invented.
   B. Egyptian traders increased business contacts with cities in western Asia.
   C. Warrior-pharaohs ruled Egypt.
   D. NONE OF THE ABOVE.

6. Why were the Egyptians able to defeat the Hyksos and reclaim the delta region?
   A. The Egyptians copied the weapons and chariots of the Hyksos.
   B. The Hyksos' army was very small.
   C. The Hyksos generals were poor leaders.
   D. NONE OF THE ABOVE

7. During the NEW KINGDOM (1,700 – 1,300 B.C.), Egypt _____.
   A. was totally conquered by the Hyksos.
   B. became an Empire.
   C. had an economy based on agriculture.
   D. NONE OF THE ABOVE

8. Hatshepsut, the first female Pharaoh in Egyptian history, _____.
   A. led a trade expedition to Punt.
   B. left behind treasures discovered by Howard Carter in 1922.
   C. became the greatest warrior during the New Kingdom.
   D. NONE OF THE ABOVE.

9. In the Egyptian Social Pyramid, merchants were _____.
   A. above the Pharaoh.
   B. below the Farmers.
   C. below the Scribes..
   D. NONE OF THE ABOVE

10. In ancient Egyptian society some Egyptians owned other people. The practice of one person owning another is called _____.
   A. marriage
   B. servitude
   C. slavery
   D. employment

Part 2: People (10 pts. @ 2 pts. each)
Matching: Pair up the people or person with their description.

Menes	Syrian	Tutankhamun	Scribe	Woodcutter

1. Unified Egypt by overthrowing the king of Lower Egypt and become the first pharaoh. _____

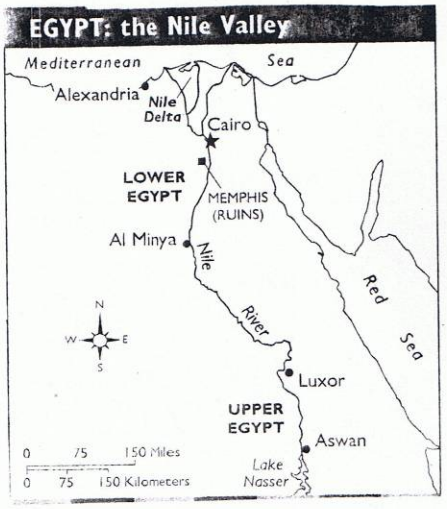
2. This person came from the artisans group on the Egyptian social class pyramid. _____

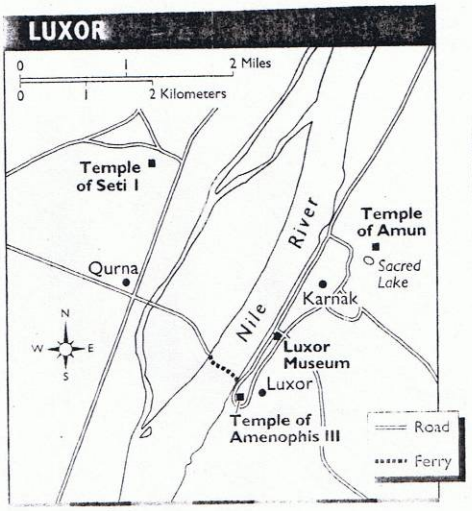
3. This person was a slave in ancient Egyptian society. _____

4. This person recorded taxes for the Pharaoh. _____

5. This pharaoh's tomb, filled with treasure, was found by Howard Carter in 1922. _____

Part 3: Skills (5 pts. @ 1 pt. each)
Use the maps to answer the questions. Write your answers on the lines.





1. Approximately how far would a boat traveling from Luxor to Aswan go?
_____

2. About how far is it from the Luxor Museum to the Temple of Amenophis III?
_____

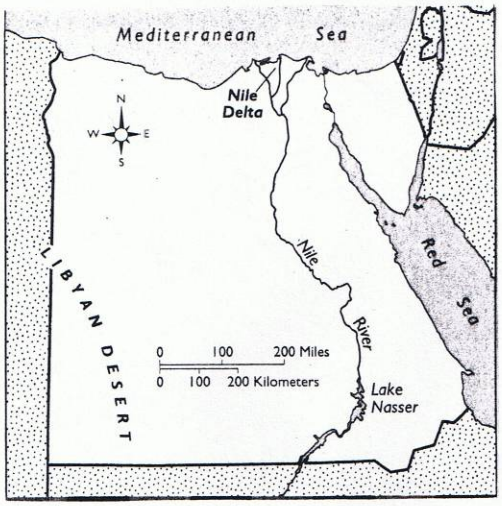
3. Name a city that is in Lower Egypt. _____

4. What is one advantage that a small-scale map has over a large-scale map?
_____

5. Which map would you use to determine the direction you would go from the Temple of Seti I to the Temple of Amun?
_____

Part 4: Writing (5 pts.)
Write a short paragraph to answer the question below.

Look at the map of Egypt. Where would you expect to find the best farmland? Tell why.



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APPENDIX H: JIGSAW II UNIT POSTTEST

Ch. 4 Post Test
Ancient Egypt
40 points

Name: _____ Period: _____
Date: _____

Part 1: Content (20 pts. @ 2 pts. each)
Multiple Choice; Circle the letter of the correct response.

1. The Nile River delta is located in _____ Egypt.
   A. Upper
   B. Lower
   C. Central
   D. NONE OF THE ABOVE

2. Lake Nasser is located in _____ Egypt.
   A. Upper
   B. Lower
   C. Central
   D. NONE OF THE ABOVE

3. Which fact(s) below describe the OLD KINGDOM (3,100 – 2,000 B.C.) period of ancient Egypt?
   A. Hieroglyphics were invented.
   B. The Great Pyramids were built.
   C. Mummification was practiced.
   D. ALL OF THE ABOVE.

4. During the OLD KINGDOM (3,100 – 2,000 B.C.) this person had great political, religious, and economic power
   A. Artisan
   B. Pharaoh
   C. Scribe
   D. General

5. During the MIDDLE KINGDOM (2,100 – 1,700 B.C.) which of the following occurred?
   A. Egypt conquered kingdoms in Nubia.
   B. Egyptian traders increased business contacts with cities in western Asia.
   C. The Hyksos conquered Lower Egypt.
   D. ALL OF THE ABOVE.

6. Which Egyptian Pharaoh was responsible for helping Egypt defeat the Hyksos during the Middle Kingdom (2,100 – 1,700 B.C.)?
   A. Ahmose
   B. Cleopatra
   C. Tutankhamen
   D. Hatshepsut

7. During the NEW KINGDOM (1,700 – 1,300 B.C.), Egypt _____.
   A. was conquered by the Greeks.
   B. had an economy only based on farming.
   C. became the strongest military power in its part of the world.
   D. NONE OF THE ABOVE.

8. _____ was one of Egypt's few female rulers.
   A. Hatshepsut
   B. Khufu
   C. Menes.
   D. Khafre

9. In the Egyptian social pyramid, farmers were _____.
   A. above the Pharaoh.
   B. above the Merchants.
   C. above the Slaves..
   D. NONE OF THE ABOVE.

10. In ancient Egyptian society slaves were _____.
    A. Mostly Syrians and Nubians.
    B. At the top of the social pyramid.
    C. The ones who recorded taxes for the Pharaoh.
    D. NONE OF THE ABOVE.

Part 2: People (10 pts. @ 2 pts. each)
Matching: Pair up the people or person with their description.

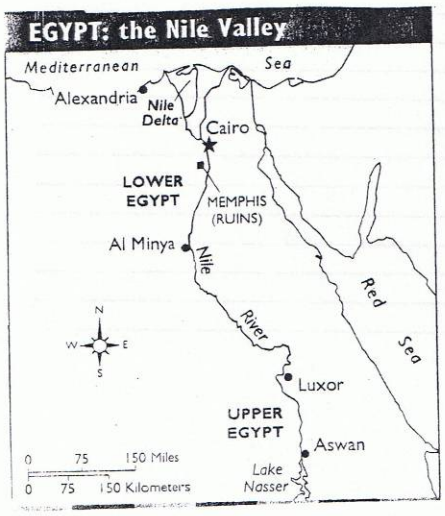
Carter	Soldier	Khufu	Official	Potter

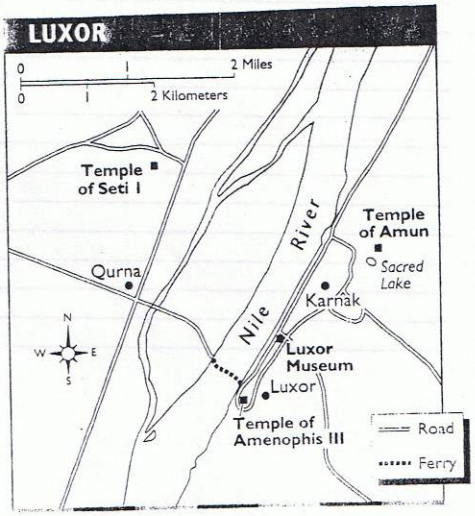
1. This Pharaoh ordered the construction of the Great Pyramid. _____
2. This person came from the Pharaoh's army and police force. _____
3. This person found Tutankhamen's tomb in 1922. _____

4. This person came from the artisan group on the Egyptian social pyramid _____

5. This person assisted the Pharaoh in running the government. _____

Part 3: Skills (5 pts. @ 1 pt. each)
Use the maps to answer the questions. Write your answers on the lines.





1. Approximately how far would a boat traveling from Cairo to Luxor go?
   _____

2. About how far is it from the Luxor Museum to the Temple of Amun?
   _____

3. Name a city that is in Upper Egypt. _____

4. What is one advantage of a large-scale map over a small-scale map?
   _____

5. Which map would you use to determine the direction you would travel to go from Luxor to Alexandria?
   _____

Part 4: Writing (5 pts.)
Write a short paragraph to answer the question below.

How did the development of hieroglyphics affect ancient Egyptian culture? Tell what hieroglyphs were used for and how hieroglyphics changed Egyptian culture.

CURRICULUM VITAE

E-mail jniemi@guam.net

Jeffrey R. Niemi

Professional Experience

[1997 - Present] Military Dependents School

Social Studies 6 Teacher

- World Civilizations (1997 – 2009)
- Sixth grade Team Leader (2007 - 2009)
- Faculty Representative Spokesperson (FRS) (2008 – 2009; 2006 – 2007)
- Faculty Representative (FR) (2007 – 2008)
- National History Day (NHD) Coordinator (2007 – 2008)
- U.S. History Scoring Conference (2004 – 2005)
- Problem-Solving Committee Chairperson (2002 – 2003)
- Professional Development Institute Committee (2002 – 2003)

[Summer, 1997] Simon Sanchez High School

Social Studies Teacher

- World Geography (Summer, 1997)

[1993 – 1997] Dededo Middle School

Social Studies Teacher

- U.S. History (1995 – 1997)
- World Geography (1993 – 1995)
- Spelling Bee Moderator (1995 – 1997)
- Track & Field Assistant Coach (1995 – 1997)

Education

[2006 - 2009] Walden University
Ed.D with a Specialization in Teacher Leadership

[1994 - 1999] University of Guam
Masters of Education in Secondary Education (Social Studies/Micronesian Studies)

[1985-1991] St. Cloud State University
Bachelors of Science in Social Studies Education (History)

License and Certifications

- Secondary Social Studies Teaching License, State of Minnesota
- Coaching License, State of Minnesota
- Secondary Social Studies Teaching License, Territory of Guam

Professional Development and Honors

- University of Guam Teacher Corps Scholar, 1999
- Presenter, Professional Development Institute, 1995