The Use of Cooperative Learning to Promote

Academic Achievement, Self-Esteem, and Inter-Group Relations

In a High School Social Studies Class

David R. Slagle

Submitted to the Master of Arts in Education Program
of Defiance College
in partial fulfillment of
the requirements for the degree of
Masters of Arts in Education

July, 2007

Dr. JoAnn Burkhardt, Coordinator
Master of Arts in Education Program
Abstract

A total of forty-eight ninth grade students participated in this study. These students were in three separate classrooms. These students attended a public high school in a small, rural, Midwestern school. Twenty-two participants were female, and twenty-six were male. The racial make-up of the students was: twenty-two Caucasian females, twenty-three Caucasian males, and three Hispanic male students. The purpose of this project was to determine the benefits of implementing cooperative learning in a secondary social studies class in a small, rural, Midwestern school. Data was collected by the teacher utilizing two teacher designed quizzes, a chapter test, one questionnaire titled *Cooperative Learning Student Self-Esteem*, and one questionnaire titled *Cooperative Learning Inter-Group Relations*. The study showed increased academic achievement, increased self-esteem, and improved inter-group relations after implementing the jigsaw strategy in the social studies classes.
Acknowledgements

I wish to acknowledge Dr. JoAnn Burkhardt and Dr. Thomas Case for their help, encouragement, and patience in the completion of this Master’s Project. I would especially like to thank my wife Connie for her support and love during this study. Her encouragement helped keep me focused and driven to complete this study. I would also like to thank all who supported me and spent countless hours praying for me during my graduate program including my mother and father Mr. and Mrs. Michael Slagle, my grandfather and grandmother Mr. and Mrs. Merlin Slagle, my sister and brother-in-law Mr. and Mrs. Troy Hartman, my brother and sister-in-law Mr. and Mrs. Daniel Slagle, my aunt and uncle Mr. and Mrs. Rick Arnold, my close friends Mr. and Mrs. Brian Cummins, Mr. Rich Tavierne, Mr. Curt Bennett, and my faithful church family. Their prayers made this study possible.
# Table of Contents

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chapter I:</td>
<td>Introduction</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Statement of the Problem</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Justification</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Definitions</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Limitations</td>
<td>2</td>
</tr>
<tr>
<td>Chapter II:</td>
<td>Review of the Literature</td>
<td>4</td>
</tr>
<tr>
<td>Chapter III:</td>
<td>Methods and Procedures</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>Participants</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>Intervention</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>Instruments/Protocols</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>Procedures</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>Timeline</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>Data Analysis</td>
<td>25</td>
</tr>
<tr>
<td>Chapter IV:</td>
<td>Results</td>
<td>28</td>
</tr>
<tr>
<td>Chapter V:</td>
<td>Discussion</td>
<td>39</td>
</tr>
<tr>
<td></td>
<td>Meaning of the Findings</td>
<td>39</td>
</tr>
<tr>
<td></td>
<td>Summary</td>
<td>41</td>
</tr>
<tr>
<td></td>
<td>Recommendations</td>
<td>42</td>
</tr>
<tr>
<td></td>
<td>Conclusion</td>
<td>43</td>
</tr>
<tr>
<td>References</td>
<td></td>
<td>44</td>
</tr>
</tbody>
</table>
Appendix A: Middle East Quiz 46
Appendix B: India Quiz 47
Appendix C: Chapter Test: World Conflicts 48
Appendix D: Cooperative Learning Student Self-Esteem Questionnaire 52
Appendix E: Cooperative Learning Inter-Group Relations Questionnaire 53
Appendix F: Cooperative Learning Informed Consent Letter, Principal 54
Appendix G: Cooperative Learning Informed Consent Letter, Parent 55
List of Figures

<table>
<thead>
<tr>
<th>Figures</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Figure 1.</strong> Comparison of class average for Middle East and India quiz grades when working in cooperative groups.</td>
<td>30</td>
</tr>
<tr>
<td><strong>Figure 2.</strong> Comparison of class average for chapter test before and chapter test after for students when working in cooperative groups.</td>
<td>31</td>
</tr>
<tr>
<td><strong>Figure 3.</strong> Number of students indicating a response of strongly agree, agree, disagree, and strongly disagree on the <em>Cooperative Learning Student Self-Esteem</em> questionnaire.</td>
<td>34</td>
</tr>
<tr>
<td><strong>Figure 4.</strong> Number of students indicating a response of yes, no, or unsure on the <em>Cooperative Learning Inter-Group Relations</em> questionnaire.</td>
<td>37</td>
</tr>
</tbody>
</table>
Chapter I: Introduction

Statement of Problem

The purpose of this project was to determine the benefits of implementing the jigsaw cooperative learning strategy in a secondary social studies class in a small, rural, Midwestern school. The research questions were: 1) How did the professional literature define the jigsaw strategy? 2) What were the benefits of implementing the jigsaw method in a classroom? 3) Did implementing the jigsaw strategy in a secondary social studies class in a small rural school improve academic achievement, increase self-esteem, and improve inter-group relations?

Justification

The professional literature reviewed indicated that the benefits of cooperative learning included higher academic achievement, higher self-esteem, improved inter-group relations, and decreased feelings of competitiveness. The researcher’s goal was to have every student engaged in learning the content; the literature seemed to suggest that the jigsaw strategy had the potential to do this. The researcher wanted to implement this pedagogy to improve individual academic achievement, self-esteem, and inter-group relations for students within the social studies curriculum. Finally, implementing this strategy might improve the students’ ability to cooperate with other students to include those with special needs and of different races and genders.

Definition of Terms

Jigsaw - A method of teaching derived from a type of cooperative learning that engaged students actively in original groups and expert groups.
Original Group - A primary home grouping of students in the jigsaw strategy that consisted of 3-6 students in a group.

Expert Group - A secondary grouping of students in the jigsaw strategy that consisted of 3-6 students in a group becoming experts on a segment within a chapter of text.

Secondary Social Studies - Social Studies courses for grades 9-12 which include the study of history, economics, geography, government, citizenship, and behavioral sciences.

Inter-Group Relations - The *liking* that members of a cooperative group have for one another. This *liking* included increased acceptance of classmates and a diminishing of prejudice.

**Limitations and Appropriate Use of Results**

The researcher's limitations pertaining to the project included timeframe, experience, and the location where the project was implemented. This project was implemented in three secondary social studies classes for ten weeks in a small, rural, Midwestern school. The researcher had ten weeks to implement and record the results of the jigsaw strategy. The timeframe of the project limited the results in that the researcher believed this amount of time was not adequate to reinforce the benefits of the jigsaw strategy. In addition, the researcher was limited by experience when implementing the jigsaw strategy. The researcher was implementing a method of teaching that was new to him and it was believed that this could distort the findings of the project. Another limitation was the location which was a small, rural community. The results may not apply to a wider spectrum within education, as students were from a small school with
limited diversities. Due to these limitations the results of the project may not be
generalized to other secondary social studies classes.
Chapter II: Review of the Literature

Introduction

For this section a review of the literature was conducted which was directed at defining the jigsaw strategy, methods of implementing the jigsaw strategy, and the benefits of implementation in a classroom. The first section will discuss how the professional literature defined the jigsaw strategy. The second section will include the benefits of implementing the jigsaw strategy in the classroom.

The purpose of this project was to determine the benefits of implementing the jigsaw cooperative learning strategy in a secondary social studies class in a small, rural, Midwestern school. The research questions were: 1) How did the professional literature define the jigsaw strategy? 2) What were the benefits of implementing the jigsaw method in a classroom? 3) Did implementing the jigsaw strategy in a secondary social studies class in a small rural school improve academic achievement, increase self-esteem, and improve inter-group relations?

Research Question #1: How did the professional literature define the jigsaw strategy?

A review of the literature was conducted to answer research question #1. Aronson, Blaney, Stephan, Sikes, and Snapp (1978), pioneers in cooperative learning research, defined the jigsaw strategy as a method of teaching, derived from cooperative learning, that had students grouped into original and, later, expert groups. They described a group model that consisted of three to seven students who were actively engaged in learning content. In the Aronson et al. (1978) model, students were assigned a part of a chapter to study in an original group, and then separated from the original group into an expert group to study and discuss the assigned topic in depth. Aronson et al. (1978) noted
that students were separated from original groups into expert groups to discuss what was learned from each topic and to become experts on a part of a chapter. The original groups were mixed by gender, race, and academic ability. Each student in the original group was assigned a different section from the chapter. For example, a biographical section from a chapter about President Franklin D. Roosevelt might contain four to five different sections and the students in original groups were assigned one of the sections to study. After that students from the jigsaw groups were formed into expert groups based on the particular section that they had studied in their original groups. Expert groups would have twenty minutes to study and discuss the assigned section and become experts on the life of President Franklin D. Roosevelt. After twenty minutes in the expert groups, the students would return in the original jigsaw groups. At that point the students were to teach everything that was learned from their expert groups. In theory each student in the original group had become an expert on a particular section.

Aronson et al. (1978) noted that jigsaw groups should be composed of three to seven students with three to five students being ideal. Aronson and Patnoe (1997) noted several advantages and disadvantages relative to the size of the jigsaw groups. The advantages of the jigsaw strategy were that all students interact with other students and actively engaged in learning the content. One disadvantage of smaller original and expert groups was fewer opportunities for students to work together with other students. A disadvantage of large original and expert groups was that large groups potentially did not effectively engage every student. In theory small groups that had less than three students per a group were too small to engage every student, and small groups that had more than five students per a group were too large to ensure that every student was engaged.
Slavin (1987) defined the jigsaw strategy in much the same way as Aronson et al. (1978). Slavin’s model depicted students grouped into teams of two to six members who studied content material in original groups and then in expert groups. Slavin (1987) provided an example in which students were assigned a chapter from the text, on the American Civil War, which was divided into four different sections. The students in the original groups read an assigned section from the chapter. The students then dispersed from the original groups and into expert groups and worked together to analyze and synthesize in the assigned section.

**Grouping Students Heterogeneously**

The literature reviewed indicated that the jigsaw method was aligned with grouping students heterogeneously. Aronson et al. (1978) mentioned that, prior to the class meeting, the teacher should divide students into heterogeneous original groups and expert groups composed of students of diverse races, ethnicities, genders, and academic abilities. Stahl (1994) and Baer (2003) suggested that groups be differentiated by the inclusion of students of high, medium, and low academic ability. Baer (2003) indicated that groups with students of differing academic ability levels provided the students with opportunities to work together to develop teamwork skills as well as to improve social skills.

**Roles of Teachers and Student Leaders**

Aronson et al. (1978) agreed with Aronson and Patnoe (1997) that it was important for the teacher to inform students prior to the implementation of jigsaw groups. Aronson et al. (1978) suggested that one student in each jigsaw group should be appointed as the group’s leader. The group leader was responsible to get the jigsaw group
organized, to keep the group productive and on task, to serve as a spokesperson for the group, to promote proper behavior within the group, to display patience and understanding, to help the group negotiate disagreements, and to provide encouraging feedback. Aronson and Patnoe (1997) stressed that the group leader had to be trained by the teacher to lead jigsaw groups, and that the training should include discussion and role-playing group techniques which would help students learn to work together in jigsaw groups. Once the groups were operational, Aronson et al. (1978) explained that the teacher-facilitator monitored the groups' work to ensure that students were on-task.

Having completed a literature review to determine how the jigsaw strategy was defined and how it operated, it became necessary to research the professional literature about the benefits of implementing the jigsaw strategy in a classroom.

Research Question #2: What were the benefits of implementing the jigsaw method in a classroom?

A review of the professional literature was conducted to answer research question #2. The studies reviewed indicated that the benefits of implementing the jigsaw strategy included higher academic achievement, higher self-esteem, increased liking of school, improved inter-group relations, and decreased feelings of competitiveness (Aronson, Blaney, Stephan, Rosenfield, & Sikes, 1977; Aronson, Blaney, Stephan, Sikes, & Snapp, 1978; Aronson & Patnoe, 1997; Johnson, Johnson, & Scott, 1978; Johnson & Johnson, 1994; Sharan, 1980; Slavin, 1980; Walker & Crogan, 1998).

Higher Academic Achievement

The professional literature reviewed revealed that cooperative learning and specifically the jigsaw strategy, had been associated with positive effects on student
academic achievement (Aronson, Blaney, Stephan, Sikes, & Snapp, 1978). A study by Aronson et al. (1978) examined 300 students from five elementary schools in which some teachers implemented the jigsaw strategy and some teachers did not. Students in both the jigsaw classrooms and non-jigsaw classrooms were studying a unit on colonial America. Students in both groups were administered a pretest on the material. The results of the pretest indicated that there were no differences in academic achievement between the two groups. After both groups had completed the colonial America unit they were administered a post-test. The students who received the jigsaw treatment scored higher on the post-test than the non-jigsaw classroom which indicated that the jigsaw method was more effective than what was the method of instruction in the non-jigsaw classroom (Aronson, Blaney, Stephan, Sikes, & Snapp, 1978).

Another study, conducted by Johnson, Johnson, and Scott (1978), examined 30 high achieving math students. The students were observed for five months in an individualized math program and were ranked from highest to lowest based on academic achievement. Fourteen students were placed in a non-cooperative classroom and the remaining 16 were placed in cooperative groups. Students in the non-cooperative group worked on their assignments individually while students in cooperative learning groups worked together. The students were tested for daily achievement and final achievement. The results of the study revealed a higher level of academic achievement for the students in the cooperative/jigsaw groups than for students in the non-cooperative individualized group.

The professional literature reviewed indicated that academic achievement improved among minority students who were taught with the jigsaw method. A study by
Sharan (1980) revealed that minority students’ academic achievement increased utilizing the jigsaw strategy. However, Sharan (1980) noted that the students in the study were administered true/false, multiple choice, and matching assessments whereas an assessment of the students’ critical thinking, information analysis, and problem solving skills would have been more appropriate evaluation of students improvement in academic achievement as a result of participating in jigsaw groups. Nevertheless, Slavin (1980) agreed that academic achievement improved for minority students when working in a cooperative learning environment.

A study by Walker and Crogan (1998) examined over 100 students from two different schools. These schools included a cooperative learning school and a non-cooperative learning school in a rural setting in Australia. They noted that the two schools were ethnically diverse with Asians, European-Australians, and Aborigines who worked in cooperative learning groups and non-cooperative individualized settings. In a four week study the students from both schools were administered a pre-test and a post-test. The study revealed that academic achievement improved for students from different ethnicities in the cooperative learning school compared to those in the non-cooperative school.

In Increased Self-Esteem

The professional literature also provided evidence that jigsaw promoted self-esteem among students (Aronson, Blaney, Stephan, Rosenfield, & Sikes, 1977; Aronson, Blaney, Stephan, Sikes, & Snapp, 1978; Johnson, Johnson, & Scott, 1978; Slavin, 1980; Walker & Crogan, 1998). Aronson et al. (1977) examined fifth grade students for six weeks who were organized into small interdependent cooperative groups. Students in the
study were compared with students in the non-cooperative classrooms. The study demonstrated that the self-esteem of students in a cooperative learning classroom increased when compared with students in non-cooperative learning classrooms. Aronson et al. (1977) noted that student improvements in self-esteem were the result of interacting with other students. Aronson et al. (1978) suggested that students who worked together received encouragement and more positive feedback from other students when working in jigsaw groups. Aronson et al. (1978) explained that allowing students to participate in a cooperative learning/jigsaw environment made students feel important, and they took a significant role in their learning process when compared to a non-cooperative classroom.

Johnson, Johnson, and Scott (1978) also stressed that the use of cooperative learning promoted higher self-esteem among students. Johnson et al. (1978) examined 30 students, with 14 in a non-cooperative classroom and 16 in a cooperative learning classroom. Students were administered a questionnaire and it was revealed that self-esteem increased while working with cooperative group members. The students in the cooperative learning classroom were given a pre-test as well as a post-test to determine what group members they enjoyed being with during group work.

Walker and Crogan (1998) with Johnson et al. (1978) stated that self-esteem increased after implementing the jigsaw strategy in a classroom. They stated that students that worked together in jigsaw groups developed teamwork skills and teamwork created higher self-esteem, which was a benefit from the jigsaw strategy.

Slavin (1980) also supported the use of cooperative learning for the promotion of higher self-esteem among students. He examined 28 field projects where students were in a cooperative learning environment. Slavin (1980) explained that students who worked
together and utilized one another as a source of information experienced higher self-esteem. In addition, Slavin (1980) stated that jigsaw groups improved the students' perspective of one another and increased students' teamwork skills in the classroom.

**Increased Liking of School**

Another benefit of implementing cooperative learning/jigsaw in the classroom was increased liking of school. Aronson et al. (1978) indicated that often students in non-cooperative classrooms became bored with the process of learning and consequently disliked school. This was evident in the research when at the end of a six week study, students were administered a test on their liking of school. They noted that students in the jigsaw classroom liked school just as much as they had before the study. For some students this study was inconclusive for the purpose of this project because cooperative learning did not have an effect. This study indicated that when students worked together in a jigsaw classroom the interaction among students and teachers had a positive benefit of increased satisfaction with school.

**Improved Inter-Group Relations**

A further benefit of the jigsaw strategy was improvement in inter-group relations among students with regard to race, ethnicity, gender, and cultural differences. Slavin (1991) described inter-group relations as the idea that people who work together learn to like one another. In addition, Slavin (1987) suggested that students who worked together in jigsaw groups learned to accept one another in cooperative learning/jigsaw groups. He noted that accepting others was important especially when students of different ethnicities and races were working together to come up with solutions for a problem.
Slavin (1987) stressed that cooperating forced students to work together which helped to diminish prejudice and discrimination toward students of different ethnicities and races.

Aronson et al. (1977) examined 304 students in 13 classes from seven different schools. They indicated that 245 students were in an experimental cooperative jigsaw group with 59 in a non-cooperative control group. The results of this study indicated that students in the jigsaw classroom increased in their acceptance of classmates. Aronson et al. (1978) agreed that students working together were more likely to accept classmates in jigsaw groups.

The Walker and Crogan (1998) study revealed that jigsaw groups decreased students prejudice that existed between Asians, European-Australians, and Aborigines. They observed 103 students in grades 4 through 6 in two different schools. One school had 31 students in a jigsaw classroom and 29 students in a non-cooperative classroom. In the other school there were 20 students in a jigsaw classroom and 23 in a non-cooperative classroom. They explained that students were given a post-test of six photographs. Students rated the picture of another student they would like to play a sport with, eat lunch with, play with on the weekend, or invite to a birthday party. The results of their study indicated that students in jigsaw groups decreased in their dislike towards students of different races or ethnicities. They noted that improved inter-group relations decreased prejudice and discrimination. This study indicated that the jigsaw strategy could enhance students acceptance toward other group members with regards to race, ethnicity, gender, and differences in cultural backgrounds.
Decrease in Student Competitiveness

The professional literature reviewed a further benefit of the jigsaw strategy which was a decrease in student competitiveness in a classroom. A study by Aronson and Patnoe (1997) noted that students who were in a jigsaw classroom for six weeks became less competitive than students in a non-cooperative classroom. The students learned to rely on fellow students for information and worked together for solutions to common problems. In theory cooperative learning holds students accountable for their learning as well as the learning of other group members. The jigsaw strategy helped to promote social development which was a result of students working together in cooperative groups. A study by Aronson et al. (1977) indicated that students in the cooperative learning/jigsaw classrooms became less competitive while the non-cooperative classroom students became more competitive. In theory a cooperative classroom helped to promote social skills for students whereas a competitive classroom did not promote social skills. The jigsaw strategy promoted cooperation within groups and group members learned from each other. This study indicated that students who worked in the jigsaw classrooms were less likely to be competitive in nature as opposed to a non-cooperative individualized classroom.

In summary, the jigsaw strategy when implemented in a classroom had the following potential benefits: higher academic achievement, increased self-esteem, increased liking of school, improved inter-group relations, and decreased competitiveness (Aronson, Blaney, Stephan, Sikes, & Snapp, 1978). Students who worked together learned together in a cooperative environment through the jigsaw strategy. Aronson et al. (1978) mentioned that students who were engaged with students in groups noticed an
increase in self-esteem and felt that their participation was an important part of being successful for assignments. Aronson et al. (1978) explained that students improved in inter-group relations as students learned to work with different ethnic, race, and cultural backgrounds in jigsaw groups. They described that students had decreased competitiveness in the jigsaw classroom. Group goals became important as opposed to individual goals.

Conclusion

In order for the researcher to answer the question regarding the benefits of implementing the jigsaw strategy in a secondary social studies class in a small, rural, Midwestern school, a review of the professional literature was conducted. The researcher reviewed the professional literature to answer the research questions: 1) How did the professional literature define the jigsaw strategy? 2) What were the benefits of implementing the jigsaw method in a classroom? 3) Did implementing the jigsaw strategy in a secondary social studies class in a small rural school improve academic achievement, increase self-esteem, and improve inter-group relations? The researcher discovered through the review of literature that the jigsaw strategy was a method of teaching that engaged students in small groups working together (Aronson, Blaney, Stephan, Sikes, & Snapp, 1978). The research defined the jigsaw strategy as students being grouped together into two different groups, classified as original groups and then expert groups to discuss, synthesize, and analyze information. This method of teaching was used to promote engaged student learning with content material.

The researcher discovered that the jigsaw strategy implemented in a classroom had many benefits. These included higher academic achievement, increased self-esteem,
increased liking of school, improved inter-group relations, and decreased competitiveness in a jigsaw classroom (Aronson, Blaney, Stephan, Sikes, & Snapp, 1978). The students had decreased competition in the cooperative learning classroom, since group goals were important as opposed to the non-cooperative classroom.

Having completed a professional literature review, the researcher was prepared to develop methods and procedures to collect data to answer research question three.
Chapter III: Methods and Procedures

Introduction

The purpose of this chapter was to describe methods and procedures utilized to collect data for this project. This chapter is divided into several sections. The first section described the number of participants for this project. The second section pertained to the type of intervention that was implemented for this project. The third section pertained to the instruments that were used to collect the data including questionnaires and pre/post tests. The fourth section described the procedure that was used for the project. The fifth section described a timeline that the researcher was able to complete the research project. The sixth section pertained to how the data was analyzed and organized from this study.

The purpose of this project was to determine the benefits of implementing cooperative learning in a secondary social studies class in a small, rural, Midwestern school. The research questions were: 1) How did the professional literature define the jigsaw strategy? 2) What were the benefits of implementing the jigsaw method in a classroom? 3) Did implementing the jigsaw strategy in a secondary social studies class in a small rural school improve academic achievement, increase self-esteem, and improve inter-group relations?

Participants

A total of forty-eight ninth grade students participated in this study. These students were in three separate classrooms. These students attended a public high school in a small, rural, Midwestern community. Twenty-two participants were female and twenty-six were male. The racial make-up of the students was: twenty-two Caucasian females, twenty-three Caucasian males, and three Hispanic male students.
Intervention

An intervention was developed and implemented in order to gather data to answer research question number three: Did implementing the jigsaw strategy in a secondary social studies class in a small rural school improve academic achievement, increase self-esteem, and improve inter-group relations? The intervention began with instruction for the students in Global Studies classes pertaining to the jigsaw method. The jigsaw strategy was used as a pedagogy in a class for two lessons. The researcher’s intervention was a model based upon Aronson’s model of implementing jigsaw in the classroom. In the Aronson et al. (1978) model, students were assigned part of a chapter to study in original groups, and then separated from the original groups into expert groups to study and discuss the assigned topic in depth.

The instruction consisted of the researcher providing information to the students about this cooperative learning strategy. The researcher prepared students, for this strategy through direct instruction. The researcher explained that the jigsaw method consisted of an original and an expert group. It was explained that within the original group roles were assigned and within expert groups specific tasks were assigned. Following this explanation the students engaged in the jigsaw strategy.

The students in the class had been placed in groups of four students prior to the researcher arriving to the school district for the student teaching experience. The groups were composed of both males and females with a range of academic ability.

While in these original groups the researcher explained that the original group had participants with specific roles. The roles were reporter, presenter, and group leader.
This jigsaw method was implemented utilizing the chapter from the text book on the Middle East. The information in this chapter was divided into four sections by the researcher. The sections were religions of the Middle East, the influence of geography on the people, the rise of Islam, and imperialism/nationalism. The original groups were provided instruction on the notion of expert groups. It was explained to the students that each person within the original group would become an expert on the four sections.

The expert groups were then formed by assigning the numbers one, two, three, and four to the original group members. Each original group had a person assigned the number one, the number two and so forth.

The researcher requested that all the number ones meet in one location in the room and continued with this until four expert groups were formed. Each numbered expert group was assigned one of the four sections.

The expert groups were presented with a specific task. Each expert group received a worksheet with questions pertaining to the assigned section. The particular expert groups then became experts on a section.

The expert groups were allowed 20 minutes to collaborate and complete the assignment. After 20 minutes the researcher had students from expert groups return to their original home groups. Students from the expert groups were then responsible to teach the material through peer teaching including oral presentation or outlining material on which they became experts to their group members.

Within the recreated original groups, each expert reported out on a specific section and was responsible for all of the members of the original group learning the
material from the four sections. The original groups were allowed 20 minutes for the teaching session.

Once each expert had presented their material to original groups, the researcher then assigned each of the original groups a section from the chapter to orally present in front of the class. For example one of the original groups presented religions of the Middle East, the influence of geography on the people, the rise of Islam, and imperialism/nationalism. Following the teaching section, the researcher requested that the reporter from each original group report out on a specific section. While a reporter was presenting, members of the other groups were to take notes and add to the information already available.

When all the original groups presented their assigned section from the chapter to the class, the researcher then administered a ten question quiz in which the researcher randomly selected ten questions from the material covered. The researcher administered a ten question quiz to assess student learning of the content material. Having administered the quiz, the researcher had modeled the Aronson model of jigsaw.

Following the Middle East jigsaw, the students engaged in one additional jigsaw over the following two weeks pertaining to India. The structure of the India jigsaw was the same as the Middle East jigsaw.

**Instruments/Protocols**

The researcher designed instruments to gather data to answer question number three: Did implementing the jigsaw strategy in a secondary social studies class in a small rural school improve academic achievement, increase self-esteem, and improve inter-group relations? The instruments designed and used were two teacher designed quizzes,
one chapter test, a questionnaire titled *Cooperative Learning Student Self-Esteem*, and a questionnaire titled *Cooperative Learning Inter-Group Relations*.

*Teacher designed quizzes*

The teacher designed two quizzes to assess student understanding of the content aligned with the goals of the lessons taught during the intervention. The teacher-researcher designed questions from the content to assess student understanding of the specific content. The first quiz included ten multiple choice questions from the content and had a total point value of 20 points (see Appendix A for complete quiz). The second quiz included ten multiple choice questions from the content and had a total value of 20 points (see Appendix B for complete quiz).

*Chapter test*

The teacher designed a chapter test to assess student understanding from the content. Aronson et al. (1978) stated that students, when involved with the jigsaw method, should be assessed prior to the content being taught and after the teaching. For this study, the teacher selected 25 multiple choice questions from the material covered which had a total point value of 100 points (see Appendix C for complete test administered).

*Cooperative Learning Student Self-Esteem*

According to the literature reviewed, criteria for self-esteem included a feeling of importance and taking a significant role in the learning process. Aronson et al. (1977) noted that student improvements in self-esteem were the result of interacting with other students. Aronson et al. (1978) suggested that students who worked together received
encouragement and more positive feedback from other students when working in jigsaw groups. Aronson et al. (1978) explained that allowing students to participate in a cooperative learning/jigsaw environment made students feel important, and they took a significant role in their learning process when compared to a non-cooperative classroom. For this study the questionnaire developed aligned with Aronson’s work on self-esteem (see Appendix D for complete questionnaire). The questionnaire consisted of seven questions. The possible responses provided were: “strongly agree, agree, disagree,” or “strongly disagree”. The questions from the survey included: 1) Did you feel more comfortable speaking in a small group of team members as opposed to the entire class, 2) Did you feel comfortable working in small groups with other team members, 3) Did you feel that team members were encouraging you when working together in groups, 4) Did you feel that working with other team members increased your self-esteem with regard to learning, 5) Did you feel that working in small groups classroom increase your team work skills as opposed to lecture classroom, 6) Did you feel that small groups increased your ability to get along with other students, 7) Did you feel that interacting with other students increased your attitude? Question number one pertained to the students’ feelings of comfort in small groups. Question number two pertained to the students’ feeling comfort in working with other team members. Question number three pertained to the students’ feeling of encouragement from other team members while working in small groups. Question number four pertained to the students’ feeling of self-esteem with regard to learning. Question number five pertained to the students’ feeling of teamwork skills working in small groups as opposed to the lecture classroom. Question number six pertained to the students’ feeling to get along with other students working in small
groups. Question number seven pertained to the students’ feeling of school while having interaction with other students in small groups.

*Cooperative Learning Inter-Group Relations*

According to the literature reviewed inter-group relations included a liking and acceptance of other team members while working in cooperative groups. Slavin (1991) described inter-group relations as the idea that people who work together learn to like one another. In addition, Slavin (1987) suggested that students who worked together in jigsaw groups learned to accept one another in cooperative learning/jigsaw groups. For this study the questionnaire developed aligned with Slavin’s work on inter-group relations (see Appendix E for complete questionnaire). The questionnaire consisted of nine questions. The possible responses were: “yes, no,” or “unsure” to their liking of other students while working in small groups. The questions from the survey included: 1) Did you enjoy working with other students during small group activities, 2) Did you like your group members, 3) Did you like or enjoy helping other group members during the cooperative learning activities, 4) Did you like or enjoy contributing your ideas during the small group activities, 5) Were your ideas liked and given consideration by other team members, 6) Did you like or enjoy being attentive to other group members during the small group activities, 7) Did you notice that you liked or enjoyed working with other students who were different than you, 8) Did you appreciate other team members’ points of view during small group activities, 9) Do you believe students got along for the common good of learning?
Procedures

The researcher gathered data to answer question number three: Did implementing the jigsaw strategy in a secondary social studies class in a small rural school improve academic achievement, increase self-esteem, and improve inter-group relations? The procedures used to gather data were two teacher designed quizzes, one chapter test, a questionnaire titled *Cooperative Learning Student Self-Esteem*, and a questionnaire titled *Cooperative Learning Inter-Group Relations*.

Teacher designed quizzes

The researcher collected data from the first quiz on the third day teaching the Middle East after implementing the jigsaw strategy. Students were to complete the ten multiple choice question quiz and the teacher utilized the data to determine academic improvements. The researcher collected data from the second quiz on the third day teaching about India after implementing the jigsaw strategy. Students were to complete the ten multiple choice question quiz and the teacher utilized the data to determine academic improvements.

Chapter test

The researcher collected data before teaching a chapter about World Conflicts on the sixth week of student teaching by administering a 25 multiple choice question chapter test. The researcher utilized this test to determine student understanding about the Middle East and India before implementing the jigsaw strategy. Students were to complete the chapter test to determine academic improvements at the completion of student teaching experience. The researcher collected data after teaching a chapter about World Conflicts on the eighth week of student teaching by administering a 25 multiple choice question
chapter test. The researcher utilized the data to determine academic improvements after implementing the jigsaw strategy.

**Cooperative Learning Student Self-Esteem**

The researcher collected data for self-esteem utilizing a seven question questionnaire to determine if self-esteem increased after implementing the jigsaw method. The researcher collected data on week ten of student teaching. The students completed a questionnaire and placed face down on their own desk until all students had finished. The students had twenty minutes to complete the questionnaire. After completion of questionnaire the researcher placed in a manila folder to be converted in to percentages for analysis.

**Cooperative Learning Inter-Group Relations**

The researcher collected data for inter-group relations utilizing a nine question questionnaire to determine if inter-group relations increased after implementing the jigsaw method. The researcher collected data on week ten of student teaching. The students completed a questionnaire and placed face down on their own desk until all students had finished. The students had twenty minutes to complete the questionnaire. After completion of questionnaire the researcher placed in a manila folder to be converted in to percentages for analysis.

**Timeline**

A timeline was developed to answer research question number three: Did implementing the jigsaw strategy in a secondary social studies class in a small rural school improve academic achievement, increase self-esteem, and improve inter-group relations?
The researcher had ten weeks to collect data and began the project in January 2006, and completed the data collection in March. In January, the researcher was granted permission to begin the project by the school principal (see Appendix F for complete letter). Also in January, the researcher was granted permission by parents to begin research utilizing students as subjects for this project (see Appendix G for complete letter). The researcher began the implementation and intervention during week four of the student teaching experience. The researcher completed the intervention during week ten of the student teaching experience. Data collection and the intervention for this project was a total of three months.

Data Analysis

The data collected during the intervention was analyzed to answer research question number three: Did implementing the jigsaw strategy in a secondary social studies class in a small rural school improve academic achievement, increase self-esteem, and improve inter-group relations? The data collection instruments used to gather data were two teacher designed quizzes, one chapter test, a questionnaire titled Cooperative Learning Student Self-Esteem, and a questionnaire titled Cooperative Learning Inter-Group Relations.

Teacher designed quizzes

The researcher analyzed data from both teacher designed quizzes. The total score was determined for each student. Then individual scores from student’s grades were then averaged. The researcher analyzed the data from the class average for each quiz. The scores were added and the class average was determined.
Chapter test

The researcher analyzed data from a chapter test before teaching content and then after teaching content. The total score was determined for each student. Then individual scores from student's grades were then averaged. The researcher analyzed the data from the class average for both chapter tests. The scores were added and the class average was determined.

Cooperative Learning Student Self-Esteem

The researcher analyzed data from one questionnaire to determine self-esteem. The total number of responses from each question was determined from each student. The responses were added and the class average was determined.

Cooperative Learning Inter-Group Relations

The researcher analyzed data from a second questionnaire to determine inter-group relations. The total number of responses from each question was determined from each student. The responses were added and the class average was determined.

Summary

A total of forty-eight ninth grade students participated in this study. These students were in three separate classrooms. These students attended a public high school in a small, rural, Midwestern community. Twenty-two participants were female and twenty-six were male. The racial make-up of the students was: twenty-two Caucasian females, twenty-three Caucasian males, and three Hispanic male students. The study attempted to determine if the implementation of the jigsaw strategy would improve academic achievement, self-esteem, and inter-group relations in a social studies class.
The researcher administered a two teacher designed quizzes, one chapter test, a questionnaire titled *Cooperative Learning Student Self-Esteem*, and a questionnaire titled *Cooperative Learning Inter-Group Relations*. The two teacher designed quizzes and one chapter test was used to determine the academic improvement of this cooperative learning method. One questionnaire titled *Cooperative Learning Student Self-Esteem* was used to determine increased self-esteem. One questionnaire titled *Cooperative Learning Inter-Group Relations* was used to determine increased inter-group relations. The researcher recorded the information from all instruments and placed into a spreadsheet where the results were analyzed and made into a figure.

The data received from the teacher designed quizzes, chapter test, and questionnaires were analyzed. Data for this study was organized to determine the benefits of implementing the jigsaw strategy in a secondary social studies classroom.
Chapter IV: Results

Introduction

The purpose of this project was to determine the benefits of implementing cooperative learning in a secondary social studies class in a small, rural, Midwestern school. The research questions were: 1) How did the professional literature define the jigsaw strategy? 2) What were the benefits of implementing the jigsaw method in a classroom? 3) Did implementing the jigsaw strategy in a secondary social studies class in a small rural school improve academic achievement, increase self-esteem, and improve inter-group relations?

The researcher used three methods of data collection to determine the results of the project. Data was collected and formulated from two teacher designed quizzes, and a chapter test to determine if academic achievement increased. Data from one questionnaire titled Cooperative Learning Student Self-Esteem was used to determine if self-esteem increased after implementing the jigsaw method (see Appendix D for complete questionnaire). Data from one questionnaire titled Cooperative Learning Inter-Group Relations was used to determine if inter-group relations including students’ ability to get along with other students increased after implementing the jigsaw method (see Appendix E for complete questionnaire). Data results from this project were then analyzed to determine if the jigsaw strategy had benefits.

Teacher designed quizzes

The researcher administered two teacher designed quizzes to determine academic improvement while working in jigsaw groups. The total score was determined for each student. From the individual scores, a group average was obtained.
Teacher designed quizzes class average all students.

The data in figure 1 indicated the comparison of the two teacher designed quizzes administered. The teacher designed quizzes included a Middle East Quiz and an India Quiz during the implementation of the jigsaw strategy while working in small groups with other team members.

The data confirmed that academic achievement, based on quiz grades, increased while working in cooperative groups. Forty-eight students scored an average of 14.75 out of 20 possible points on the Middle East quiz. The highest score was 20 out of 20 possible points. The lowest score was 0 out of a possible 20 points. Forty-eight students scored an average of 15.16 out of 20 possible points on the India quiz. The highest score was 20 out of a possible 20 points. The lowest score was 8 out of a possible 20 points.
Figure 1. Comparison of class average for Middle East and India quiz grades when working in cooperative groups.

**Chapter test**

The researcher administered a chapter test before the implementation of the jigsaw strategy and a chapter test after the implementation of the jigsaw strategy to determine academic improvement while working in jigsaw groups. The total score was determined for each student. Individual scores from student’s grades were then averaged. The researcher analyzed the data from the class average for both chapter tests.

<table>
<thead>
<tr>
<th>Middle East Quiz</th>
<th>India Quiz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class Average</td>
<td>14.75</td>
</tr>
<tr>
<td></td>
<td>15.16</td>
</tr>
</tbody>
</table>

Middle East Quiz and India Quiz
Academic Achievement
Quiz= 20 points
Chapter test class average all students.

The data in figure 2 indicated the comparison from a chapter test before implementation of the jigsaw method, and a chapter test after the implementation of the jigsaw method for all students while working in small groups with other team members.

The data indicated that students increased test scores on chapter tests while working in cooperative groups. Forty-eight students scored an average of 70.18 out of 100 possible points on a chapter test before implementing the jigsaw method. The highest score was 99 out of 100 possible points. The lowest score was 50 out of 100 possible points. Forty-eight students scored an average of 70.58 out of 100 possible points on a chapter test after implementing the jigsaw method. The highest score was 99 out of 100 possible points. The lowest score was 44 out of 100 possible points.
Figure 2. Comparison of class average for chapter test before and chapter test after for students when working in cooperative groups.

Cooperative Learning Student Self-Esteem

The researcher administered one questionnaire titled *Cooperative Learning Student Self-Esteem* to determine if the students' self-esteem increased when working in jigsaw groups. The total number of responses from each question was determined from each student. The responses were added and the class average for each question was determined. The information was divided into seven different questions which pertained to student self-esteem while working in cooperative jigsaw groups.

All students indicated increased self-esteem while working in cooperative groups. Thirteen of forty-eight (27%) students marked “strongly agree” for question number one which indicated that students felt more comfortable speaking in a small group of team members as opposed to the entire class. Twenty-seven (56%) students marked “agree” for question number one. Seven (15%) students marked “disagree” for question number one which indicated that students felt more comfortable speaking in a small group of team members as opposed to the entire class. One student (2%) marked “strongly disagree” for question number one. Ten of forty-eight (21%) students marked “strongly agree” for question number two which indicated that students felt comfortable working in small groups with other team members. Thirty-six of forty-eight (75%) students marked “agree” for question number two which indicated that students felt comfortable working in small groups with other team members. Two (4%) students marked “disagree” for question number two which indicated that students felt comfortable working in small
groups with other team members. No students marked "strongly disagree" for question number two. Two of forty-eight (4%) students marked "strongly agree" for question number three which indicated if students felt that team members were encouraging them when working together in groups. Twenty-three of forty-eight (48%) students marked "agree" for question number three. Twenty-two (46%) students marked "disagree for question number three. One student (2%) marked "strongly disagree" for question number three. One of forty-eight (2%) students marked "strongly agree" for question number four which indicated that students felt that working with other team members increased self-esteem with regard to learning. Twenty-five of forty-eight (52%) students marked "agree" for question number four. Twenty-two of forty-eight (46%) students marked "disagree" to question number four which indicated that students felt that working with other team members increased self-esteem with regard to learning. No students marked "strongly disagree" for question number four. Six of forty-eight (13%) students marked "strongly agree" for question number five which indicated that students felt working in a small group classroom increased teamwork skills as opposed to lecture classroom. Thirty-five of forty-eight (73%) students marked "agree" for question number five. Seven (15%) students marked "disagree" for question number five and no students marked "strongly disagree" for question number five. Three of forty-eight (6%) students marked "strongly agree" for question number six which indicated that students felt that small groups increased ability to get along with other students. Thirty-five (73%) students marked "agree" for question number six. Ten (21%) students marked "disagree" for question number six and no students marked "strongly disagree" for question number six. Four of forty-eight (8%) students marked "strongly agree" for question number seven
which indicated that students felt that interaction with other students increased attitude.

Eighteen (38%) students marked “agree” for question number seven. Seventeen (35%) students marked “disagree” for question number seven. Nine of forty-eight (19%) marked “strongly disagree” for question number seven. The data confirmed that all students reported an increase in self-esteem.

Figure 3. Number of students indicating a response of strongly agree, agree, disagree, and strongly disagree on the Cooperative Learning Student Self-Esteem questionnaire.
Cooperative Learning Inter-Group Relations

The researcher administered one questionnaire titled Cooperative Learning Inter-Group Relations to determine if inter-group relations improved for students when working in jigsaw groups. The total number of responses from each question was determined from each student. The responses were added and the class average for each student was determined. The information was divided into nine different questions which pertained to student inter-group relations while working in cooperative jigsaw groups.

All students indicated improved inter-group relations while working in cooperative groups. Thirty-nine of forty-eight (81%) students marked “yes” for question number one which indicated that students enjoyed working with other students during small group activities. Three (6%) students marked “no” for question number one, and six out of forty-eight (13%) students answered “unsure” for question number one which indicated that students enjoyed working with other students during small group activities. Forty-four of forty-eight (92%) students marked “yes” for question number two which indicated that students liked group members. Two (4%) of the students marked “no” to question number two, and two (4%) students marked “unsure” for question number two which indicated that students liked group members. Forty-one of forty-eight (85%) students marked “yes” for question number three which indicated that students liked or enjoyed helping other group members during cooperative learning activities. Two (4%) students marked “no” for question number three, and five of forty-eight (10%) students marked “unsure” for question number three. Thirty-eight (79%) students marked “yes” for question number four which indicated that students liked or enjoyed contributing ideas during the small group activities. Two of forty-eight (4%) students marked “no” for
question number four, and eight (17%) students marked "unsure" for question number four. Thirty-one of forty-eight (65%) students marked "yes" for question number five which indicated that student ideas were liked and given consideration by other team members. Eight (17%) students marked "no" for question number five, and nine (19%) students marked "unsure" for question number five. Thirty-six of forty-eight (75%) students marked "yes" for question number six which indicated that students liked or enjoyed being attentive to other group members during the small group activities. Four (8%) students marked "no" for question number six, and eight (17%) students marked "unsure" for question number six. Forty-two of forty-eight (88%) students marked "yes" for question number seven which indicated that students noticed that they liked or enjoyed working with other students who were different from them. Three (6%) students marked "no" for question number seven, and three (6%) students marked "unsure" for question number seven. Forty-five out of forty-eight (94%) students marked "yes" for question number eight which indicated that students appreciated other team members' points of view during small group activities. Three (6%) students marked "unsure" for question number eight which indicated students appreciated other team members' points of view during small group activities. Twenty-eight of forty-eight (58%) students marked "yes" for question number nine which indicated that students believed they got along for the common good of learning. Nine (19%) students marked "no" for question number nine, and eleven of forty-eight (23%) students marked "unsure" for question number nine. The data confirmed that all students reported an increase in inter-group relations.
A total of forty-eight ninth grade students participated in this study. These students were in three separate classrooms. The study indicated increased academic achievement, increased self-esteem, and improved inter-group relations when implementing the jigsaw strategy in a social studies class.

The researcher administered two teacher designed quizzes and a chapter test during the implementation of the jigsaw strategy. The two teacher designed quizzes and chapter test were graded and recorded by the researcher whereby most students academic
achievement increased from before, during, and after the implementation of the jigsaw strategy in a social studies classroom. The researcher administered one questionnaire titled *Cooperative Learning Student Self-Esteem* to determine self-esteem of students while working in cooperative groups. The data was analyzed and recorded by the researcher whereby most students self-esteem increased while working in jigsaw groups.

The researcher administered a one questionnaire titled *Cooperative Learning Inter-Group Relations* to determine inter-group relations including students' getting along while working in cooperative groups. The data was analyzed and recorded by the researcher whereby most students inter-group relations improved while working in cooperative/jigsaw groups.

Having completed the results from this study it became necessary to complete the discussion including meaning of the findings, summary, recommendations and conclusions.
Chapter V: Discussion

Introduction

The purpose of this project was to determine the benefits of implementing cooperative learning in a secondary social studies class in a small, rural, Midwestern school. The research questions were: 1) How did the professional literature define the jigsaw strategy? 2) What were the benefits of implementing the jigsaw method in a classroom? 3) Did implementing the jigsaw strategy in a secondary social studies class in a small rural school improve academic achievement, increase self-esteem, and improve inter-group relations?

The researcher wanted to implement a jigsaw strategy in a secondary social studies classroom to determine if the jigsaw strategy improved student academic achievement, self-esteem, and inter-group relations. It occurred to the researcher that there must be a more effective, engaging way to teach social studies and to promote student academic achievement, self-esteem, and inter-group relations. This prompted a study of social studies literature to search for student-centered pedagogies as opposed to teacher-centered instruction.

Meaning of the Findings

The results of this study suggested that implementation of the jigsaw method in a social studies classroom resulted in improvement in students’ academic achievement, self-esteem, and inter-group relations.

Teacher designed quizzes

The results of this study indicated that academic achievement might have slightly improved for most students. The students scored an average of 14.75 out of 20 possible
points on first quiz and 15.16 out of 20 possible points on the second quiz. The results indicated that academic achievement increased by 0.41 points when implementing the jigsaw method.

*Chapter test*

The results of this study indicated that academic achievement slightly improved for most students. The students scored an average of 70.18 out of 100 possible points on a chapter test before implementing the jigsaw strategy and scored an average of 70.58 out of 100 possible points on a chapter test after implementing the jigsaw strategy. The results indicated that academic achievement increased by 0.40 points when implementing the jigsaw method.

*Cooperative Learning Student Self-Esteem*

The action research also indicated that student perception of self-esteem was positive as reported by students when working in cooperative learning groups. According to the results, forty-six of forty-eight (96%) students strongly agreed or agreed that they felt comfortable working in small groups with other team members. This level of comfort was used by the researcher as one indicator of an increase in self-esteem. The researcher noticed that twenty-six of forty-eight (54%) students strongly agreed or agreed that their self-esteem increased when working in small groups. These results may have indicated that students enjoyed working in small groups, however the potential increase for self-esteem was lower than expected by the researcher. This may indicate that students who worked together received little encouragement and/or negative feedback from other students working in their jigsaw groups.
Cooperative Learning Inter-Group Relations

This study indicated that inter-group relations may have improved for students when working in cooperative groups. According to the results, thirty-nine of forty-eight (81%) students indicated that they enjoyed working with other students during small group activities which indicated a liking of other group members. According to the literature reviewed, student enjoyment of working with others was considered one of the characteristics of positive inter-group relations. It was also noted, that forty-four of forty-eight (92%) students indicated that students liked the members of their groups.

Summary

A total of forty-eight ninth grade students participated in this study. These students were in three separate classrooms. These students attended a public high school in a small, rural, Midwestern school. Twenty-two participants were female, and twenty-six were male. The racial make-up of the students was: twenty-two Caucasian females, twenty-three Caucasian males, and three Hispanic male students.

The purpose of this project was to determine the benefits of implementing cooperative learning in a secondary social studies class in a small, rural, Midwestern school. Data was collected by the teacher utilizing two teacher designed quizzes, a chapter test, one questionnaire titled Cooperative Learning Student Self-Esteem, and one questionnaire titled Cooperative Learning Inter-Group Relations. The results of the study suggested a slight increase in academic achievement, an increase in student self-esteem as it related to level of comfort in working with groups, and improved inter-group relations when implementing the jigsaw strategy in a social studies class.
The researcher administered two teacher designed quizzes and a chapter test during the implementation of the jigsaw strategy. The two teacher designed quizzes and chapter test were graded and recorded by the researcher. The researcher also administered one questionnaire titled *Cooperative Learning Student Self-Esteem* to determine self-esteem while working in jigsaw groups. The results obtained from the questionnaires were analyzed and recorded by the researcher. A questionnaire titled *Cooperative Learning Inter-Group Relations* used to determine inter-group relations of students including the liking or acceptance of classmates working in jigsaw groups was administered. The results from this questionnaire were analyzed and recorded by the researcher. The data collected from these instruments suggested that a slight increase in academic achievement, student perception of self-esteem, and inter-group relationships may have been the result of the intervention.

**Recommendations**

Recommendations for future study include increased time for the intervention and a more diverse participant group. Given the ten weeks that the researcher had to implement and record the results of the jigsaw strategy, the timeframe of the project limited the results in that the researcher believed this amount of time was not adequate to determine with more certainty that the jigsaw strategy would improve academic achievement, inter-group relations, and self-esteem. The researcher would suggest utilizing two semesters to collect data on the jigsaw method. Additionally, the researcher would suggest that future studies be conducted with wider and more diverse sample of students, since this study was conducted in a small, rural, primarily Caucasian school.
Finally, the researcher would recommend that future research involving the jigsaw method would utilize more participants. For this study the researcher collected data from three social studies classes with a total of forty-eight ninth grade students in a secondary social studies class. The researcher would suggest utilizing students from all high school grades to increase the reliability of the findings. This study was designed for implementation in a secondary social studies classroom. However, the professional literature reviewed indicated that the jigsaw method of teaching would improve students academic achievement, increase student self-esteem, and increase student inter-group relations when implemented for all grade levels.

Conclusion

The jigsaw strategy as a teaching pedagogy was slightly effective for most secondary social studies students in this study. It is the recommendation of this researcher that, although the data suggested only slight changes in achievement, self-esteem and inter-group relations, other social studies teachers implement cooperative learning strategies in their classrooms.
References


Appendix A

Middle East Quiz: (20 points)  

Name: ____________________

1) The most valuable resource found in the Middle East is:
   A. copper  B. oil  C. timber  D. coal

2) Which region of the Middle East is correctly linked as the birth place of Islam?
   A. Anatolian Peninsula  B. Fertile Crescent  C. Nile Valley  D. Arabian Peninsula

3) The center of life in the cities of the Middle East was the:
   A. sook/suq  B. oasis  C. park  D. mosque

4) The Fertile Crescent is different from much of the Middle East because it:
   A. is mountainous.  B. is desert.  C. has rich soil and abundant water.  D. borders the Arabian Sea.

5) Which two bodies of water are linked by the Suez Canal?

6) One major difference between Judaism and other ancient religions of the region is that:
   A. Jews believe in only one god.  B. Jews believed that people had to choose between good and evil.  C. Judaism set out rules for human behavior.  D. Jews did not try and convert other to their beliefs.

7) Which statement is not true of both Christians and Jews?
   A. they worship only one god.  B. they read and study the torah.  C. they believe that people and their leaders should live moral lives.  D. they believe that the messiah has not yet come.

8) Islam split into two factions after Muhammad’s death because Muslims disagreed on:
   A. the divinity of Muhammad.  B. the question of women’s rights.  C. what their holy book should include.  D. the necessary qualifications for religious leader.

9) Which of the following did not become a British mandate after WWI?
   A. Syria  B. Lebanon  C. Palestine  D. Saudi Arabia

10) Who was the founder of Zionism?
    A. Muhammad Ali  B. Theodor Herzl  C. Reza Khan  D. Napoleon Bonaparte
Appendix B

India Quiz: (20 points) 

Name: ____________________________

1) What is the nation north of India and is occupied by China?
   A. Kashmir   B. Tibet
   C. Manchuria   D. Russia

2) What is a small country that acts as a neutral zone between hostile nations known as?
   A. Plebiscite   B. buffer state
   C. Taliban   D. Tibet

3) What was the site of a chemical factory where an accident killed thousands of people?
   A. Narmada Valley Project   B. quarrying
   C. Bhopal   D. Calcutta

4) What advantage do people hope to gain from the thousands of dams along the Narmada River?
   A. electricity and water   B. greater catches of fish
   C. severe flooding   D. new forests

5) What was the government agency that supports nuclear energy for India called?
   A. Indian Nuclear Society   B. Narmada Valley Project
   C. Department of Atomic Energy   D. quarrying

6) Explain why people prefer urban poverty to rural poverty?
   A. a city offers a person more opportunities to improve his or her situation.
   B. People cannot watch television or listen to the radio in rural India.
   C. People think cities are safer.
   D. It is easier to find housing in a city than in a village.

7) What is the greatest threat that overpopulation poses to environment?
   A. People live longer because health care has improved.
   B. More people means more environmental pollution.
   C. Land must be divided up among many children within one family.
   D. India will have to build more nuclear power plants.

8) Which of the following is the most accurate description of the Taj Mahal?
   A. the tomb of a princess   B. a memorial to an emperor’s wife
   C. a temple   D. a mosque

9) Which of the following is an ornate form of writing?
   A. calligraphy   B. raga
   C. tala   D. Sanskrit

10) The most important source for Indian theater pieces has been?
    A. folk tales and epics   B. social issues
    C. Indian history   D. Classic novels.
Chapter Test: World Conflicts (100 points)  
Name: __________________________

1) The Fertile Crescent is different from much of the Middle East because it:
   A. is mountainous.  
   B. is desert.  
   C. has rich soil and abundant water.  
   D. borders the Arabian Sea.

2) Which region of the Middle East is correctly linked as the birth place of Islam?
   A. Anatolian Peninsula  
   B. Fertile Crescent  
   C. Nile Valley  
   D. Arabian Peninsula

3) The Hebrews/Judaism were different from nearby peoples because they:
   A. used the wheel.  
   B. were monotheistic.  
   C. invented the alphabet.  
   D. used iron.

4) What belief is shared by Jews and Christians?
   A. There is only one God.  
   B. Jesus was the Messiah.  
   C. As head of the church, the pope’s word is God’s law.  
   D. The Gospels contain the history of the ancient Hebrews.

5) How did emperor Constantine influence the development of Christianity?
   A. He persecuted Christians severely, killing thousands.  
   B. He ordered the death of Jesus.  
   C. He converted to Christianity and ended the persecution of Christians.  
   D. He took control of the Eastern Orthodox Church.

6) The most valuable resource found in the Middle East is:
   A. copper  
   B. oil  
   C. timber  
   D. coal

7) The sacred book of the Jews is called the:
   A. Ten Commandments  
   B. Torah  
   C. Gospels  
   D. Zend-Avesta

8) Many people were attracted to Christianity because:
   A. it taught that anyone can achieve salvation.  
   B. it did not require people to obey any special laws.  
   C. its teachings grew out of Islam.  
   D. it allowed people to keep their traditional beliefs.

9) Which of the following is a correct statement about Muhammad’s teachings?
   A. He rejected Judaism and Christianity.  
   B. He ordered Jews and Christians to leave areas conquered by Islam.  
   C. He accepted the original teachings of the Jewish and Christian scriptures as God’s word.  
   D. He translated the Koran into Latin and Hebrew.
Appendix C continued

10) The center of life in the cities of the Middle East was the:
   A. sook/suq  
   B. oasis  
   C. park  
   D. mosque

11) Which of the following is an accurate statement about Muslim family life?
   A. men and women had equal rights.  
   B. women had no influence in the family.  
   C. it was believed that women were more likely to bring dishonor to a family than men.  
   D. children were raised by their grandparents.

12) The Five Pillars of Islam can be described as the:
   B. Muslim leaders responsible for spreading the religion.  
   C. most important duties of all Muslims.  
   D. holiest shrines of Islam.

13) What were some examples of Gandhi’s civil disobedience against the British Government?
   A. Refusal to attend government schools or to pay British taxes.  
   B. Boycott all British goods, particularly cloth.  
   C. Stage a Salt March and gain international support for his cause.  
   D. All of the above.

14) What was the purpose of the Government of India Act?
   A. Provide local self-government and limited democratic elections in India which also fueled mounting tensions between Hindus and Muslims.  
   B. Provide local self-government and limited democratic elections in India which also fueled mounting tensions between Nationalists and Communists.  
   C. Provide local self-government and limited democratic elections in India which also fueled mounting tensions between Buddhist and Christians.  
   D. Provide local self-government and limited democratic elections in India which also fueled mounting tensions between Islamists and Catholics.

15) What was the purpose of the Salt March?
   A. Provide local self-government and limited democratic elections in India which also fueled mounting tensions between Islamists and Catholics.  
   B. A peaceful protest lead by Gandhi in opposition to having to buy salt only from the government along with paying the sales tax.  
   C. An aggressive protest lead by Gandhi in opposition to having to buy salt only from the government along with paying the sales tax.  
   D. Demonstration to strengthen the British economy.

16) Which is an accurate statement how the Indian government organized?
   A. The Indian government resembles the United States.  
   B. The Indian government is a Parliamentary Democracy based upon British form of government.  
   C. The Indian government is similar to the Hindus in Japan.  
   D. The Indian government has no official government.
Appendix C continued

17) Which is an accurate statement about the role of women in Indian society?
   A. Women were leaders in society.
   B. Women helped their husbands move up to a higher caste.
   C. The major duty of women was to have male children.
   D. A widow took over her husband’s business after his death.

18) A result of British rule of India was which of the following?
   A. creation of a middle class of British educated Indians.
   B. conversion of all Indians to Christianity.
   C. end of conflict of Hindus and Muslims.
   D. end of Indian nationalism.

19) Which of the following is an accurate statement about the caste system?
   A. Most Hindus believe that a person’s caste is the result of karma.
   B. A person’s caste was assigned by the government.
   C. Hindu priests assigned a person’s caste.
   D. If people worked hard, they could improve their caste.

20) Which of the following is an accurate statement about Hinduism and Buddhism?
   A. Neither religion had a founder.
   B. Both religions accept the caste system.
   C. Both religions believe in many gods.
   D. Both believe in karma and reincarnation.

21) What was the result of the Sepoy Mutiny?
   A. India won its independence from Great Britain.
   B. The East India Company took control of the government.
   C. Britain made India a colony.
   D. Britain ended its policy of educating Indians.

22) According to Hinduism the goal of life is to:
   A. continue to be reborn.
   B. free the soul from the body so it can reunite with Brahman.
   C. worship Vishnu above all other gods.
   D. follow the teachings of Siddhartha Gautama.

23) To seek nirvana, the Buddha taught people to do which of the following?
   A. give thanks to Vishnu       B. worship Shiva
   C. follow the Noble eight fold path  D. all of the above

24) The Indian National Congress was:
   A. founded as a revolutionary organization dedicated to violence.
   B. dedicated to forging unity between Hindus and Muslims.
   C. dedicated to protecting the caste system and traditional Indian life.
   D. called for gradual change to allow Indians a greater role in government.
Appendix C continued

25) What important event happened in the Indian city of Amritsar in 1919?
   A. British troops killed hundreds of Indian protestors.
   B. Indian protestors rioted and killed hundreds of British government officials.
   C. The Congress Party decided to work toward independence.
   D. Hindus and Muslims agreed to work together for peace.
Appendix D

Cooperative Learning Student Self-Esteem Questionnaire

Demographic Data:
Your Gender: (Circle One) Male Female

Your Race: (Circle One) African American Native American
Hispanic Caucasian
Asian Other __________

Directions: Please read each item and circle the response that best describes your experience in working with small groups.

1. Did you feel more comfortable speaking in a small group of team members as opposed to the entire class?
   Strongly Agree Agree Disagree Strongly Disagree

2. Did you feel comfortable working in small groups with other team members?
   Strongly Agree Agree Disagree Strongly Disagree

3. Did you feel that team members were encouraging you when working together in groups?
   Strongly Agree Agree Disagree Strongly Disagree

4. Did you feel that working with other team members increased your self-esteem with regard to learning?
   Strongly Agree Agree Disagree Strongly Disagree

5. Did you feel working in a small group classroom increased your teamwork skills as opposed to lecture classroom?
   Strongly Agree Agree Disagree Strongly Disagree

6. Did you feel that small groups increased your ability to get along with other students?
   Strongly Agree Agree Disagree Strongly Disagree

7. Did you feel that interaction with other students increased your attitude?
   Strongly Agree Agree Disagree Strongly Disagree
Cooperative Learning Inter-Group Relations Questionnaire

Demographic Data:
Your Gender: (Circle One) Male Female
Your Race: (Circle One) African American Hispanic Asian Native American Caucasian Other

Directions: Please read each question and place a check mark in the box labeled yes, no, or unsure that most relates to your experience working in small groups.

<table>
<thead>
<tr>
<th>Inter-Group Relations</th>
<th>Yes</th>
<th>No</th>
<th>Unsure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Did you enjoy working with other students during small group activities?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Did you like your group members?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Did you like or enjoy helping other group members during the cooperative learning activities?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Did you like or enjoy contributing your ideas during the small group activities?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Were your ideas liked and given consideration by other team members?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Did you like or enjoy being attentive to other group members during the small group activities?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Did you notice that you liked or enjoyed working with other students who were different than you?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Did you appreciate other team members’ points of view during small group activities?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Do you believe students got along for the common good of learning?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix F

Cooperative Learning Informed Consent Letter, Principal

Mr. Norm Glismann, Principal
Bryan High School
150 S. Portland Street
Bryan, OH 43506

Dear Mr. Glismann,

I would like to thank you for the opportunity to do my student teaching in the Bryan High School in Mrs. Bentz’s social studies class. As you may already know I am attending Defiance College working on a Masters of Arts in Education degree. As a graduate student I am required to perform a research project for completion of the Masters program. I am currently working on a project entitled *The Use of Cooperative Learning to Promote Academic Achievement, Self-Esteem, and Inter-Group Relations In a High School Social Studies Class*. I will be assessing the use of cooperative learning in high school social studies classes. I will be utilizing students’ work which includes quizzes, tests, and questionnaires to determine the results of cooperative learning in the high school social studies class. All research data will be anonymous and confidential. I am asking for your permission to allow for me to participate in my research project at Bryan High School during the third quarter. I have attached the letter for parents and am available to discuss the project with you at any time.

Sincerely,

David R. Slagle
Student Teacher

Mr. Norm Glismann
Bryan High School Principal

Approved  Disapproved  Date
Appendix G

Cooperative Learning Informed Consent Letter, Parent

Dear Parents/Guardians,

I am a student teacher at Bryan High School in Mrs. Bentz’s social studies class. I am attending Defiance College working on a Masters of Arts in Education degree. As a graduate student I am required to perform a research project for completion of the Masters program. I am currently working on a project entitled *The Use of Cooperative Learning to Promote Academic Achievement, Self-Esteem, and Inter-Group Relations In a High School Social Studies Class*. I will be assessing the use of cooperative learning in high school social studies classes. I will be utilizing students’ work which includes quizzes, tests, and questionnaires in order to determine the results of cooperative learning in the social studies class. All research data will be anonymous and confidential. I am asking for your permission to allow your child to participate in my research project at Bryan High School during the third quarter. If yes, you need do nothing. If no, please sign and return the form at the bottom of the page.

Sincerely,

David R. Slagle
Student Teacher
Bryan High School Class of 1996

(No, I do not want my child to participate in this study)

Parents/Guardians Signature ___________________________ Date ___________