AN INVESTIGATION OF THE EFFECTS OF COOPERATIVE SMALL-GROUP INSTRUCTION AND THE USE OF ADVANCE ORGANIZERS ON THE SELF-CONCEPT AND SOCIAL STUDIES ACHIEVEMENT OF THIRD-GRADE STUDENTS

by

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CHAPTER I

Introduction

During the past few decades, increased emphasis has been placed on the role of self-concept and self-esteem in elementary schools. Beane, Lipka, and Ludewig (1980) contend that a substantial and growing body of empirical evidence suggests that self-perceptions are related to various aspects of schooling, including achievement, social status, participation, and perception of others.

Unfortunately, there are children in many elementary schools who suffer academically and/or socially because of poor self-perceptions. These children may be gifted, average, or slow. They may be of a different ethnic or minority background. They may also possess an inhibited desire to give answers to classroom questions. Based on these characteristics and many others evidenced in elementary classrooms, children may develop negative attitudes toward themselves. These negative attitudes often interfere with a child's desire to learn.

Several researchers have shown that interpersonal relationships can play a role in the development of self-esteem in children. Beatty and Beatty (1976) pointed
out that students who had trouble with peer relationships or exhibited low verbalization patterns became fearful of approaching others. There was a strong tendency to avoid contact with classmates or teachers. This kind of social inhibition exhibited by some students is a possible reason for low self-esteem. Due to lowered self-esteem, a cycle begins in which a child increasingly avoids contact with classmates and teachers, especially in an academic environment. As avoidance of social contacts increases, a student's self-esteem diminishes.

Research has shown that the use of small groups in the classroom may have a beneficial effect on how students relate to each other. Blaney, Stephan, Rosenfield, Aronson, and Sikes (1977) conducted an experiment in which a cooperative form of small grouping was provided for 10 fifth-grade classrooms in seven elementary schools. Three classes from these schools served as control groups. The small-group classes met for about 45 minutes a day, 3 days a week for 6 weeks. Each group contained a balance of all ethnic groups.

The self-esteem of students was measured by tabulating responses to attitude questions. The results revealed that experimental students involved in the small-group arrangement gained in self-esteem. A decrease in self-esteem was observed in the control groups.
Results from a study by Swing and Peterson (1982) provide additional support for small-group learning. Fifth-grade students of mixed ability were trained in small-group interaction. Students received regular classroom instruction in mathematics for 4 weeks. Each day, after the teacher presented new material, students worked on assigned lessons in mixed-ability groups of four members. Students' achievement in long division was assessed after the completion of a 10-day unit on division. After an additional 10 days of instruction on a fractions unit, a second achievement test was administered. An attitude-toward-math scale was administered at the completion of the study. Data revealed that the use of interactive small groups aided the achievement and retention of high- and low-ability students but did not facilitate the achievement of medium-ability students.

The small-group method selected for this study is the Jigsaw Small-Group Approach. This approach makes use of small groups composed of four to six members each whose focus is not upon the competitive large-group environment but rather on the use of cooperative, peer-teaching techniques.

The Jigsaw makes use of cooperative small groups as opposed to the competitive large-group atmosphere found in teacher-controlled classrooms. The traditional role of teachers as experts is changed so that they are no
longer the major source of instruction. In time, the children, through teaching and listening, depend on each other to learn all their material.

Although research has supported the use of cooperative small-group instruction such as the Jigsaw Approach, there have been problems involved in its implementation in the classroom. Sharan and Sharan (1976) maintained:

Whenever several people work together, organizational problems will arise. In the traditional classroom they usually pertain to the way the teacher functions, how he or she organizes students. In the small group classroom, organizational issues must be dealt with by the groups themselves in order to facilitate their own progress. (p. 18)

A problem then, for small groups, is the organization and distribution of the content material to the members of each group.

Even if the general topic is determined by the teacher (or by the curriculum), the groups themselves must decide on the specific aspects to be investigated. Next, potential resources must be located and access to them arranged. Finally, subtopics must be divided among group members in such a way that they feel both interested in their specific project and aware of its relevance to the wider group goal. (Sharan & Sharan, 1976, p. 18)

Generally, the content material is based upon student textbooks and teacher-made units. A major concern then, for anyone involved in small-group instruction, is the preparation and use of such written materials in order to maximize learning (Barnes & Clawson, 1975).
David P. Ausubel (1963), in his theory of meaningful verbal learning, advocated the use of advance methods or organizers to facilitate the learning of written materials. Ausubel reasoned that learning was facilitated when students were presented with appropriate organizers prior to the actual presentation of the material to be learned (Clawson & Barnes, 1972). According to Ausubel (1963), organizers gave students an overview of the more detailed material to be learned.

Statement of the Problem

The problem of the study was to investigate the effects of cooperative small-group instruction and the use of advance organizers on the self-concept and social studies achievement of third-grade students. This study evaluated the methodology of organizing content into summaries, outlines, key terms, and questions and the effects of their presentation on student learning during Jigsaw cooperative small-group instruction. The presentation of the advance materials was made prior to the actual learning task (pages to be read in a textbook). The four methods had similarities to Ausubel's advance organizers. However, no claim was made by the investigator that the above means of organizing content met all of the criteria espoused by Ausubel (1963).
Purpose of the Study

The purpose of this study was to determine whether significant differences existed in the self-concept and social studies achievement of third-grade students receiving instruction in Jigsaw cooperative small groups, using advance organizers, and third-grade students in a control class receiving conventional instruction. The experimental instruction in the study was provided for small groups based on Elliot Aronson's Jigsaw Small-Group Approach. Four specific types of advance organizers (summaries, outlines, key terms, and questions) also were used in the experimental instructional program as a means of organizing content material.

To conduct the study, four experimental third-grade classes were formed. The four classes were provided social studies instruction in the Jigsaw Small-Group Approach. Also, each class was randomly assigned one of the four types of advance organizers.

A fifth third-grade class served as the control class. In this class, the teacher served as the major source of instruction. Instruction was provided in a large-group (conventional) situation.

This study sought to answer whether or not new content could be organized in such ways as to facilitate and improve a learner's ability to grasp new concepts and knowledge while serving as an active, productive member
of a small group. The study also was implemented to assist children in developing positive self-concepts.

Hypotheses

The hypotheses for the study were stated in the null form. Self-concept and social studies achievement were the two dependent variables. The Piers-Harris Children's Self-Concept Scale (Piers & Harris, 1969), Inferred Self-Concept Scale (McDaniel, 1973), and a 60-item social studies test were the measures for the dependent variables. The level of significance for these hypotheses was $p < .05$.

**Hypothesis I:** There will be no statistically significant interaction between the pre- and post-evaluation results of the Piers-Harris Children's Self-Concept Scale and the classes (four experimental classes and the control class).

**Hypothesis II:** There will be no statistically significant difference between the combined Piers-Harris Children's Self-Concept Scale mean scores of the experimental classes and the control class over pre- and post-evaluations for the dependent variable.

**Hypothesis III:** There will be no statistically significant difference between the combined pre- and post-evaluation Piers-Harris Children's Self-Concept Scale mean
scores over the combined experimental classes and the control class for the dependent variable.

**Hypothesis IV:** There will be no statistically significant interaction between the pre- and post-evaluation results of the Inferred Self-Concept Scale and the classes (four experimental classes and the control class).

**Hypothesis V:** There will be no statistically significant difference between the combined Inferred Self-Concept Scale mean scores of the experimental classes and the control class over pre- and post-evaluations for the dependent variable.

**Hypothesis VI:** There will be no statistically significant difference between the combined pre- and post-evaluation Inferred Self-Concept Scale mean scores over the combined experimental classes and the control class for the dependent variable.

**Hypothesis VII:** There will be no statistically significant interaction between the pre- and posttest results of the 60-item social studies test and the classes (four experimental classes and the control class).

**Hypothesis VIII:** There will be no statistically significant difference between the combined 60-item social studies test mean scores of the experimental classes and the control class over pre- and posttests for the dependent variable.
**Hypothesis IX:** There will be no statistically significant difference between the combined pre- and posttest 60-item social studies test mean scores over the combined experimental classes and the control class for the dependent variable.

If significant differences are discovered in any of the above hypotheses, a post analysis $t$ test will be performed to measure the differences.

**Significance of This Study**

**Implications.** It was the purpose of this study to investigate the benefits of the Jigsaw Small-Group Approach and advance organizers on students' self-concept and achievement. The investigator desired that the results of this study would: (a) provide information to aid teachers in organizing and presenting social studies materials, and (b) facilitate and improve the learning of elementary school students in social studies classes.

A concern of this study was students' self-concept. Quite often, self-concept is not given consideration in how effective instruction can be for any particular student. The investigator desired that this study would provide information that: (a) might aid teachers in recognizing the necessity of a positive self-concept as a prime agent in the development of student relationships with peers and teachers, and (b) might aid teachers in
recognizing the importance of self-concept as a significant factor in the learning of elementary school students.

**Applications.** By providing educators with the results of the study, they may be able to determine the social studies methods that most affect self-concept and achievement. This should enable elementary school teachers to provide more meaningful instruction. As a result, students may benefit both socially and academically from social studies instruction.

**Population**

The population of this study consisted of 118 third-grade students attending Thompson Elementary School in Alabaster, Alabama. The students were members of heterogeneously-grouped homeroom classes. Five teachers were randomly selected from a list of nine third-grade teachers. The homeroom children of the five teachers (118 students) were the subjects for this study.

**Methods of Treatment**

This study was implemented during a period of 18 weeks. There were five third-grade classes involved in the study. Social studies instruction was provided in the afternoons for 1 hour, 5 days a week. All classes were matched as closely as possible for equivalency in achievement and ethnic makeup. Four classes served as
the experimental classes, and the class receiving conventional instruction was the control class.

The four experimental classes were organized into small groups identified as Jigsaw groups. In using this approach, the students in each experimental class were organized into groups of four to six members for the purpose of peer teaching. Students in the four experimental classes also received instruction with advance organizers. The students read the advance organizers prior to reading each social studies lesson.

Two self-concept scales and a 60-item social studies test were administered as pre-evaluations/tests to all classes prior to the beginning of the treatment program. A 2-week Jigsaw training period and a 2-week advance organizer training period were provided for the four experimental classes prior to the beginning of the 14-week treatment period. The post-evaluations/tests of the two self-concept scales and the social studies test for all classes were administered the week immediately after the conclusion of the 14-week treatment period.

The investigator regularly observed the four experimental classes and the control class to monitor the instruction being provided. The purpose for monitoring the instruction was to ensure consistency of instruction among the experimental classes and the control class.
Instruments

The self-concept instruments chosen for this study were the Piers-Harris Children's Self-Concept Scale (Piers & Harris, 1969) and the Inferred Self-Concept Scale (McDaniel, 1973). Reliability of the Piers-Harris Children's Self-Concept Scale and the 60-item social studies test was checked by using the Spearman-Brown formula. Reliability of the Inferred Self-Concept Scale was checked by using the Kuder-Richardson Formula 20 (see Chapter III). The social studies achievement instrument was a 60-item test developed for this study by the researcher. This test contained 60 multiple-choice questions that were based on the content found in the third-grade social studies textbook, The Metropolitan Community (White, Galler, Howard, Richards, & Michnay, 1982).

Definition of Terms

For the purpose of this study, the terms listed below were defined as follows:

Social Studies Achievement: knowledge of third-grade social studies material as measured by a 60-item social studies test.

Advance Organizers: "written material that serve the function of facilitating the incorporation and retention of subject matter. The organizer provides a brief summary
of the more detailed material contained in the learning passage" (Clawson & Barnes, 1972, p. 150).

**Advance Organizers--Summaries:** a synopsis or comprehensive view of each chapter condensed and written in a narrative form.

**Advance Organizers--Outlines:** major topics and features of each chapter are outlined in order as they appear in the text. Beneath each topic heading (example--IV. Climate) would be several subtopics (example--A. Climate is really the weather).

**Advance Organizers--Key Terms:** organizers that make use of special attention words found throughout the social studies textbook. The words are usually displayed in bold, black letters. For instance, the words *map scale* and *boundary* would be key terms.

**Advance Organizers--Questions:** organizer questions developed from the text material and arranged in sequential order. The questions were based on major topics and special vocabulary derived from each chapter.

**Conventional Classroom:** the teacher serves as the major source of learning. Instruction is provided in a large-group situation. Material to be learned is presented to the students in a "teacher-questions, students-respond" format. This was the method of instruction employed by the control class of the study.
Cooperative Small Group Classroom (Jigsaw): four to six students are grouped together for the purpose of studying a body of assigned material. Members of each group are assigned specific questions about the material being studied. Then each student is assigned to a subgroup composed of members of the other groups who are responsible for studying the same material. After a period of time, all members return to their regular groups to share the answers to the assigned questions.

Heterogeneous Groups: children of different abilities grouped together for instruction.

Self-Concept: "those perceptions, beliefs, feelings, attitudes, and values one accepts as descriptive of oneself" (Pigge, 1970, p. 107). Self-concept is measured by scores on the Piers-Harris Children's Self-Concept Scale and the Inferred Self-Concept Scale.

Limitations

The following were considered as limitations of the study:

1. The population was confined to one large middle-class elementary school of the Shelby County School System in Alabama.

2. The treatment periods were limited to 1-hour sessions on 5 consecutive days for 14 consecutive weeks.
3. The subjects for this study were limited to third-grade students at Thompson Elementary School in Alabaster, Alabama.

4. The social studies material was not randomly selected.

5. Children participating in the study were not randomly assigned to groups.

6. Each of the classes was taught by a different teacher.

Organization of the Study

This study contains the following chapters. Chapter I presented a discussion of the rationale for the study and described the problem, purpose, hypotheses, and significance of the study. Also included were the population, treatment methods, assessment instruments, definitions of terms used in the study, and the limitations of the study.

Chapter II contains a review of the research literature related to small groups, advance organizers, self-concept, and the Jigsaw Small-Group Approach.

Chapter III contains a description of the population that participated in the study, the Jigsaw Small-Group Approach, the textbook, the advance organizers, the instructional materials, and the assessment instruments. The procedures followed in implementing the treatment and
the statistical treatment of the data also are described in this chapter.

Chapter IV contains a presentation of the results of the statistical analyses of the data. Chapter V contains the summary, conclusions, and recommendations for further study.
CHAPTER II

Review of Related Literature

Introduction

This chapter contains a review of the related literature which served as a background for the purpose of this study. This review is presented under the following major headings: (a) small groups, (b) advance organizers, (c) self-concept, and (d) the Jigsaw Small-Group Approach. Although there are several studies that have been conducted with high school students, the great majority of the literature contained elementary and middle school subjects.

Small Groups

Twenty studies were identified that examined the use of small groups in the classroom. In the first study, Smola and Mandell (1974) developed a training program designed to provide junior high school students with the tools of group dynamics. They hypothesized that students who become more knowledgeable of grouping techniques could use these techniques to raise their production levels in the classroom.
A class of 32 mixed-ability, ninth-grade students was selected for the training program. Three of the students had been classified as slow learners, and six were classified as medium-ability students. The training schedule included five 1-hour periods of instruction to be provided within a 5-day week.

On Day One, the beginning session on group dynamics was organized in three steps. First, intraclass groups were randomly developed. Five different-colored jawbreakers were in a bag. Students removed a jawbreaker from the bag as they entered the room. The students then were formed into groups according to the color of the jawbreaker they had received.

Each group was given the same task to perform. The groups were given crayons and newsprint and were asked to present, in graphic form, information such as members' favorite colors or favorite television programs.

On Day Two, the students formed into their same intraclass groups and were given directions on how to brainstorm. The students were asked to brainstorm about how their classroom could be improved. After approximately 10 ideas were listed by each group, the brainstorm session ended. The groups then were directed to rank, in order, the ideas from the most to the least important. However, before the ideas were ranked, members of each group counted off to assign each member a number.
Individuals with the numbers one, three, and five were asked to leave the room. When these students left the room, the remaining group members were instructed to ignore number one, reject the ideas of number three, and readily accept number five's ideas. The students who had left the room were told to try to get their ideas at the top of the list as being most important. The groups then reformed in order to rank the classroom improvement ideas. At the end of this session, time was spent discussing the ideas and feelings of students who had been rejected or readily accepted.

On Day Three, the beginning of the session was used to present a short lecture to the class. Topics covered in the lecture included: (a) responsibilities of various group members; (b) duties of the group leader, recorder, observer, and member; (c) group functional tasks such as brainstorming and critical listening; (d) behaviors which obstruct group functioning; and (e) behaviors that help the group to function.

Next came a period of student interaction using agree-disagree statements. Eight students were randomly selected from the entire class and were placed in a small-group configuration. The task of this group was to reach total unanimity on 10 statements. The remainder of the class acted as observers. The observers were reminded to
make use of the criteria presented in the lecture earlier in the class session.

Finally, at the end of this session, students were asked to present their observations to the class. They were to speak of what they saw happening in the group and what they observed concerning the performance of individuals within the group.

On Day Four, the students met again in intraclass groups of five or six students and worked on a classification task. Each group was directed to categorize and classify measuring instruments found in the science classroom. Categories were to be identified by each group. A visual that showed each group's work concluded the classification task.

The students then were administered a self-esteem questionnaire to determine how valuable they were to the group. The remaining minutes of the period were used for discussing the students' ratings within their groups.

On Day Five, a content-oriented group task was assigned to each intraclass group. The task consisted of collecting data pertaining to the use of indicators for acids and bases. For the remainder of the class, the students were asked to rate themselves in the classroom grouping. A questionnaire was administered to the students that required them to make value judgments of their individual contributions to the group.
The results, based primarily on observation, revealed that, by the end of the training sessions, students seemed to display a greater tolerance and understanding of one another. Also, individual students seemed to become more aware of their student identity as small-group members.

Wilcox (1976) examined methods of increasing students' participation in classroom discussion. The design of the study was based upon students' discussion during small-group instruction.

The subjects were low-income fifth and sixth graders in an urban elementary school. Three treatment groups were formed from each of six classes. Each of the three groups had a different leadership treatment: (a) group leader-teacher, (b) group leader-untrained student, and (c) group leader-trained student. The study was conducted over a 4-week period, and a total of 45 group sessions were videotaped and analyzed.

Group tasks were based on a series of problem-solving stories developed by Fannie and George Shaftel entitled "Values in Action." The tasks were presented in filmstrip form and were stopped at a dilemma point. Each leader was trained to ask the group to discuss the stories and to reach a consensus on solutions to the stories' dilemma.

Major findings of the study, based on a two-way analysis of variance, revealed that small groups led by students had a significantly higher rate of discussion
participation than the small groups led by teachers ($p<.01$). Group members led by trained students were much more active, initiated more new and different ideas, and presented more rationale for their ideas than the members of small groups led by teachers or untrained students.

A study by Cassidy and Vukelich (1977) evaluated the effect of small-, medium-, and large-group size on kindergarten children's listening comprehension. The subjects were 120 kindergarten children from a suburban school near Wilmington, Delaware. Subjects were randomly assigned to one of four groups: Group One--15 members per group, Group Two--7 or 8 members per group, Group Three--1 member per group, Group Four--control group--15 members per group.

The treatment program consisted of sessions, each 20 minutes in length, in which stories were read aloud, and questions about the stories were answered by the subjects. For each story, 8 to 10 questions were asked. The children recorded their answers on a pictorial answer sheet that made use of answer choices presented in drawing form. Each answer sheet contained the appropriate number (8 or 10) answer rows. The students were asked to place markers on the drawings they thought were the correct responses to the posed questions.

To study the effects of group size on listening comprehension, all subjects were administered four
comprehension subtests taken from four standardized reading tests. A listening comprehension score was obtained for each subject by totaling the subtest scores.

An examination of the means revealed that the students receiving individual instruction achieved the greatest gains ($\overline{X} = 18.70$, $SD = 7.85$). Students in the large- and medium-sized groups achieved almost equal gains ($\overline{X} = 12.47$, $SD = 9.59$, and $\overline{X} = 11.67$, $SD = 10.30$, respectively).

A study by Peterson and Janicki (1979) used various measures of student ability and adaptive techniques of the individual learning approach (large group) and a mixed-ability (small group) approach to explore fourth-, fifth-, and sixth-grade students' learning of fractions in a regular classroom setting. The authors, in reviewing research related to the topic of the study, suggested that children seemed to do better with instructional approaches in which the responsibility for learning was placed more on the students themselves and less on the teacher.

The subjects for the study were 100 students assigned to multiage units of instruction in an elementary school in rural Wisconsin. Students' from one fourth-fifth grade unit and one fifth-sixth grade unit participated in the study. Teachers identified 50-55 students in each of the two multiage units who had not learned material on fractions. These students were randomly assigned to one
of two treatment groups, a large-group approach or a small-group approach. Children who were selected to participate in the small-group approach were assigned to groups containing four members each. Each of the small groups contained one low-ability student, one or two medium-ability students, and one or two high-ability students.

At the beginning of the study, students completed a variety of aptitude tests. Students were taught a unit on fractions. At the end of the 2-week period on fractions, achievement was measured by administering a 35-item test on fractions. At the end of the study, students also completed an attitude-toward-math scale, and an attitude-toward-teaching approach scale. An observation system also was used to assess the two teaching approaches and to measure student behavior during class.

The results of the study, based on regression analysis, indicated that high-ability students retained more using the small-group approach than with the large-group approach, and low-ability students retained more using the large-group approach than with the small-group approach. Low-ability students had a more positive attitude with the large-group than with the small-group approach. As tutors, high-ability students learned much about fractions by explaining the material to other students in their small groups.
Gennuso (1981) investigated the behaviors of small groups of children in a task-accomplishment situation. The subjects for the study were fourth- and fifth-grade students assigned to 36 small groups (four students per group). The students were assigned two construction-type tasks, one task serving as a pretest and one serving as a posttest. Eighteen of the 36 groups made up the treatment population.

A secondary purpose of the study was to determine the effects of group discussion generated by questions modified from creative problem-solving techniques. The students in the treatment groups participated in the question-discussion phase of the study. As the students worked, their conversations were tape-recorded. Transcripts of the taped conversations were developed. Trained evaluators classified the remarks into two categories: productive and nonproductive.

An analysis of variance of the data revealed that the group discussion increased productive communication. There were no significant changes in behavior in the fifth-grade control groups. Both fourth-grade groups, experimental and control, increased the number of remarks and number of productive remarks. Members of groups who participated in the discussion displayed reduced correlations between task completion time and nonproductive remarks, and between task completion time and total
remarks, compared to the control group members who did not participate in the discussions.

Peterson, Janicki, and Swing (1981) investigated the ability-interaction effects on students' learning. A large-group method in which each student worked alone and a small-group method in which each student worked with ability-mixed peers were used in the study. The subjects were 93 male and female students from a fourth-grade unit of an elementary school in rural Wisconsin.

At the beginning of the study, students completed a variety of aptitude measures and attitude scales. On the basis of their responses on these measures, students were assigned to treatment groups. A stratified random assignment was carried out so that an equal number of high-, medium-, and low-ability students were assigned to either a small-group or a large-group approach.

During the 2-week study, each teacher taught a geometry unit for 40 minutes per day according to the approach to which the class had been randomly assigned. After the study, the students completed a geometry achievement test, an attitude-toward-teaching approach scale, and an attitude-toward-mathematics scale. Analysis of the test results revealed that high- and low-ability students did better with the small-group approach and that medium-ability students did slightly better with the large-group approach.
The use of small groups to raise reading scores was implemented by Pizzo (1982). Her class consisted of 31 fourth-grade pupils, 23 whom had been diagnosed as "learning disabled," and a majority came from homes in which a language other than English was spoken. Results of the administration of a New York City reading test to 16 of the students showed a mean reading score of 2.2 grade equivalent. The mean class reading score was 2.7 grade equivalent.

The treatment program for this study consisted of teaching the students small-group techniques such as: (a) team learning, (b) circle of knowledge, (c) role-playing, and (d) brainstorming. These small-group techniques were used throughout the year during reading instruction time.

When the students were tested again in March, the mean class reading score was 4.3 grade equivalent, a gain of 1.6 years. The researcher also maintained that the students had become independent, successful learners whose attitudes revealed that they had begun to value themselves and others.

Jenkins, Mayhall, Peschka, and Jenkins (1974) designed a series of experiments to determine the effectiveness of resource teachers as managers of tutors or as small-group instructors. In the four experiments, students were taught both in small groups by a resource
teacher and in a cross-age tutorial setting supervised by the resource teacher.

In Experiment One: Word Recognition, the subjects were 10 learning-disabled and 3 educable-mentally-handicapped students ranging in age from 7 to 10 years. Students were instructed for two 10-minute sessions daily. Each student learned two sets of isolated words drawn from the Sullivan Programmed Reading Series. The order of tutorial and small-group instruction was counterbalanced by each student being taught one session each day in both approaches. The results of Experiment One showed that, as a group, the subjects' ability to recognize words grew at a faster rate when tutored by another student than when taught in a small group by a teacher.

In Experiment Two: Spelling, the subjects were four third-grade, learning-disabled students who received resource assistance in spelling and reading. The tutors were fifth graders. Two spelling lists of 30 words each were randomly selected from three spelling lessons. Students were given a written pretest before instruction began. A daily spelling test was administered to the students following each small group and tutorial instructional approach. The mean gain on tutor-taught words was 17.5, as opposed to 12.0 for group-instructed words.

In Experiment Three: Multiplication, the subjects were five fourth-grade students referred for resource
assistance. The tutors were sixth-grade students. Two sets of 18 multiplication facts were drawn from the facts 2x2 through 9x9. One set was randomly drawn for tutorial instruction and the other for small-group instruction. Instruction in both approaches was provided for 5 days.

The average gain on facts that were tutored was 6.0 facts while the average gain on group instruction facts was 3.6 facts. All students learned more facts when tutored as opposed to being taught in small groups.

Five primary-level students, diagnosed as emotionally or mentally handicapped, served as subjects for Experiment Four: Reading. All were reading at first-grade level. Fifth-grade students served as tutors. The five students had recently begun reading the Sullivan Book Two. Students read orally in both approaches. Individual 2-minute reading assessments for the recording of word errors were given each day. The treatment period was 12 days for small groups and 10 days for tutorial instruction.

Mean reading rate per minute for the students receiving tutorial instruction was 55.2 correct with 4.6 errors on the last day of performance. The mean reading rate for the students receiving group instruction was 30.8 correct with 4.6 errors. Again, individual performance revealed that each subject experienced greater growth in the tutorial program.
A doctoral study by Wallace (1981) tested the theory of students performing better in small classes than those in large classes. This study assessed the effects of a small-group tutorial program in Los Angeles, California, on the academic performance of students placed in such a program. The subjects were 430 students attending grades 4 through 8. These students were all enrolled in small-group tutorial programs.

The purpose of the study was to determine if students in small-group tutorial programs achieved as well as students in traditional programs. Mathematics, reading, and language arts were the three areas of achievement measured.

The Comprehensive Test of Basic Skills, Form S, Level 2, was the instrument used to measure achievement. This test was administered as a pre- and posttest measure. The mean scores of the pre- and posttests were examined for all groups. The level of significance was $p<.05$. The results in mathematics, language, and reading were significant for all grades and groups involved in the study.

Although there was no control group, the researcher concluded that students in the small-group tutorial program definitely were not harmed academically. It also was concluded that the subjects may have performed better than their peers in the traditional school setting.
Sharan, Ackerman, and Lazarowitz (1980) conducted a 3-week experiment designed to compare the social studies and science achievement of pupils taught in small, cooperative groups with that of students taught in whole-class situations. The researchers hypothesized that students involved in small-group instruction would not differ from students who studied in traditional classrooms on measures of cognitive functioning.

The subjects for the study were 10 classrooms of pupils from two elementary schools. Both schools were in the same community. Five classrooms composed of grades 2 through 6 were in one school. Teachers at this school had learned how to conduct small-group instruction. Five classrooms of parallel grades, where all teaching was in the traditional whole-class approach, served as the control classrooms. There were 109 children in the five traditional classes and 108 in the five small-group classes.

Teachers at each grade level were asked to choose topics they desired to teach according to the accepted school curriculum. Topics chosen by the teachers included the clinic, fire, transportation, and illegal immigration. Identical learning materials, based on the chosen topics, were given to both teachers at each grade level. Small-group students planned their own lessons in terms of subtopics, division of labor, and group discussions. In
the control classroom, the teachers presented topics verbally, asked questions, and made homework assignments.

Analyses of results were based on three measures: (a) observation of trained observers, (b) five achievement tests, and (c) a standardized reading test. An analysis of variance was performed on the data obtained with the high- and low-level questions from each of the five achievement tests. Subjects in grades 2, 4, and 6 from small-group instruction performed best on high-level items (grade 2--small group, $\bar{X} = 8.45$, $SD = 4.48$, and for whole class, $\bar{X} = 7.87$, $SD = 6.26$; grade 4--small group, $\bar{X} = 6.58$, $SD = 2.46$, and for whole class, $\bar{X} = 5.91$, $SD = 1.74$; grade 6--small group, $\bar{X} = 17.41$, $SD = 7.69$, and for whole class, $\bar{X} = 13.76$, $SD = 6.50$). Achievement scores of both groups showed no significant difference on items measuring low-level cognitive functioning.

The effects of two methods of structuring learning goals--cooperatively and individualized--were compared by Johnson, Johnson, and Scott (1978) on a series of attitude and performance variables. The 30 highest achieving mathematics students out of 120 fifth and sixth graders served as subjects. The students were randomly assigned to either cooperative small groups, consisting of mixed achievers, or to an individualized program.

The subjects studied mathematics for 60 minutes a day for 50 days. In the cooperative situation, students were
instructed to work together as a group, with all students giving suggestions and ideas. In the individualized situation, students were instructed to work on their own and avoid interaction with other students.

Three measures of mathematics achievement were taken at the end of the study. Also, daily observations were recorded in a log. Each student also was interviewed to measure attitudes toward ethnic and sex role heterogeneity among peers.

The results revealed on both attitude measures that students in the cooperative groups had more positive attitudes toward heterogeneity among peers than did students in the individualized condition ($F = 12.4, p<.001$ and $F = 3.25, p<.10$, respectively). The cooperative small-group subjects also obtained a higher daily achievement in mathematics compared to the control subjects.

The effect of cooperation and competition on group cohesiveness was the subject of a study by Phillips and D'Amico (1956). Fourth-grade students selected from two midwest schools served as the subjects. Eight groups of five students each were developed. Four groups were highly cohesive and four were cohesively low. The groups were randomly assigned to work under cooperative or competitive conditions.

Attraction (or cohesiveness) of a group was measured by a sociometric questionnaire administered at the
beginning of the study. Groups were formed on the basis of the questionnaire.

The experimental task consisted of a modification of the game "Twenty Questions." Subjects were asked to identify animals selected from third-grade readers by asking the experimenter questions that could be answered "yes" or "no."

In the cooperative groups, each member was equally awarded a prize each time an animal was identified. In the competitive group, a scale was used to determine who would win the prize.

The sociometric questionnaire was administered again at the end of the study. The results revealed that groups that worked under cooperative conditions increased in cohesiveness. In three of the four groups, the increase was significant well beyond the 1% level of confidence (high cohesion—cooperative class B, initial choices 9, final choices 11; low cohesion—cooperative class B, initial choices 0, final choices 4; low cohesion—cooperative class A, initial choices 0, final choices 3). It also was found that groups which worked under competitive conditions did not necessarily decrease in cohesiveness (in one group there was a significant increase in the number of within-group choices: low cohesion—competitive class B, initial choices 0, final choices 3; in two groups there was no change in the number of
within-group choices: high cohesion--competitive class B, initial choices 14, final choices 14, low cohesion--competitive class A, initial choices 3, final choices 3; and in one there was a significant decrease in the number of within-group choices: high cohesion--competitive class A, initial choices 10, final choices 7). The findings revealed that classroom groups which operated on a cooperative basis could be used to improve interpersonal relationships.

Robinson (1979) also reported an investigation that involved the use of cooperative small groups and the effects of such grouping on mathematics tasks of elementary children. The subjects of the study were 18 sixth-grade pupils in a rural school. The children had been previously classified as high-, middle-, or low-ability students in mathematics. The students were randomly assigned into experimental and control groups. Six small instructional groups were formed.

The pupils were taught by six undergraduate students trained in the two instructional methods. Instruction for each approach was provided for 20 minutes on 5 consecutive days. Each group had an observer who recorded behaviors of students and teachers.

The topic for the unit of instruction was "division concepts." The experimental method consisted of group interaction where children asked questions, discussed
concepts among themselves, and told each other of ideas and solutions to problems. The control method was one of teacher-directed instruction.

Instruments for the study included an observation and comment sheet used by observers to record behaviors. The posttest task for each group was for students to use a slide rule reproduction to learn multiplication and to make up steps for division.

The results revealed that all three experimental groups were able to learn to multiply using the slide rule without teacher direction. None of the control groups could do the task without teacher direction.

The subjective statements made by the observers were analyzed. Comments concerning the treatment group included: "pupils enjoyed helping each other," and "there was more enthusiasm and interest in their work." In the control group, observer comments included: "pupils were always hurrying to be the first done," and "pupils laughed at wrong answers."

In another study, Webb (1982) investigated interaction and achievement in cooperative small groups in four mathematics classrooms of a Los Angeles junior high school. The sample consisted of 96 students in grades 7, 8, and 9. The students were members of two average and two above-average mathematics classes at a junior high school.
The setting for the study was a special classroom designed for mathematics instruction with additional materials that could be manipulated. Students worked in small groups in this special classroom.

"Consumer Mathematics" served as the topic for instruction. The unit on consumer mathematics consisted of four activities to be completed on different days. One week before the start of the study, students were assigned to groups on the basis of alphabetical order and student choice of subject. Most groups had three students.

After the groups were formed, the ability composition of each was determined using the Comprehensive Test of Basic Skills (CTBS). Uniform-ability groups contained students of similar ability. Mixed-ability groups had students from one or more ability stratum.

Students took an achievement test at the end of the consumer mathematics unit. The achievement test consisted of one multiple-part item corresponding to each activity in the unit. Students also completed a questionnaire at the end of the study. The first part of the questionnaire was an extroversion-introversion scale. An open-ended question asking students to state whether they liked working in small groups made up the second part of the questionnaire.
An observation instrument was used to assess interaction among students and teachers in the groups. Observers wrote notes about all group interactions, noting the speaker, recipient, and content of each interchange. Two trained persons served as observers.

Results from the measure on achievement revealed that there was not a significant difference in achievement between mixed ability-grouped ($\bar{X} = 28.02$, $SD = 5.62$) and uniform ability-grouped students ($\bar{X} = 24.72$, $SD = 6.44$) for group compositions ($p<.15$). The only variable that showed a significant difference between grouping conditions was "student asks a question and receives no response" (mixed ability group--$\bar{X} = 46$, $SD = .83$, uniform ability group--$\bar{X} = 1.03$, $SD = 1.22$) for group composition ($p<.01$). The frequency of asking questions and not receiving responses was higher among uniform-ability groups.

Weigel, Wiser, and Cook (1975) examined the effects of cooperative interethnic learning on the ethnic relations and attitudes of junior and senior high school students in Denver, Colorado. Subjects for the study were drawn from a junior high school and a senior high school sample of white, black, and Mexican-American students attending integrated classes for the first time.

Ten English teachers volunteered to participate in the study. Each of the 10 teachers taught both by the
whole-class method and by a small-group method in which students worked in interethnic teams of four to six members and cooperated on assignments and classroom projects. Thus, teachers participated in the treatment program and acted as their own control.

Each pair of classes was comparable in ethnic mix. The small-group classes were encouraged to work toward common goals and thus create a mutual interdependence among group members. The control classrooms used whole-class instruction, with students obtaining most information from lectures and individual reading. The study was conducted during a 4 1/2-month period in the senior high school and over a 7-month period in the junior high school.

Several measures were used to evaluate the outcome of both the treatment and control groups. Interviews were conducted to assess teachers' expectations of which method would be most strongly endorsed. Social relationships in the classroom were evaluated, based upon information collected from interviews with teachers. Participating students completed questionnaires which dealt with cross-ethnic respect and liking among classmates and cross-ethnic friendship choices. Several months after the study had ended, ethnic attitude among students was assessed using interviews conducted in the subjects' homes.
The results revealed:

1. Teachers were consistent in indicating a positive appraisal of the small-group method.

2. Based on teacher interviews, the amount of interpersonal conflict in both types of classes was quite low; a total of 62 instances of conflict was recorded in the 12 separate classes involving a total of 324 students over a period of 4 1/2 months in the senior high school and 7 months in the junior high school.

3. Small-group students were three times more likely to help their counterparts as were students in the more traditional classrooms (frequency of helping, whole-class method = 85; frequency of helping, small-group method = 250).

4. White students in small-group classes displayed more respect and liking for Mexican-American classmates as compared to white students in whole-class instruction groups (F = 17.75 and F = 9.59, p<.01, respectively).

The effects of cooperation, competition, and individualization on drill-review, problem-solving, specific-knowledge acquisition, and specific-knowledge retention instructional tasks were researched by Johnson and Johnson (1979). Three fifth-grade classes in a large, urban school comprised the study sample. Sixty-six students were included in the study.
In the cooperative situation, students were randomly assigned to groups of four or five. The competitive condition was composed of students randomly assigned to seven clusters of three and four students each. Cooperative subjects were instructed to work together as a group, share materials and ideas, and help each other find answers. Subjects in the competitive situation were required to compete within each cluster for first, second, third, and fourth place. The students were asked not to interact with their peers. The students were to seek help only from their teachers.

In the individualistic situation, students were required to work on their own with no peer interaction. The students were instructed to seek help only from their teacher.

The four instructional tasks consisted of: (a) a multiplication review, (b) a version of the Rasmusson Triangle, (c) the first three chapters of a programmed-learning booklet by Coronet Films focused on dividing words into prefixes and roots (specific-knowledge acquisition), and (d) a test on the roots and prefixes (specific-knowledge retention). Daily worksheets served as measures of achievement for the study. A questionnaire designed to assess student perceptions and attitudes also was used as a measure.
The results revealed that the cooperative situations produced more positive attitudes than did either the competitive or individualized situations. The cooperative groups obtained higher achievement \((p < .01)\) on the problem-solving tasks \((\bar{X} = 15.20, SD = 2.40)\) than did the competitive groups \((\bar{X} = 12.50, SD = 4.31)\) or the individualistic groups \((\bar{X} = 7.91, SD = 1.56)\). The cooperative groups also obtained higher achievement on the knowledge-retention tasks when compared with the competitive and individualistic groups. This increase, however, was not statistically significant.

In a related study, Johnson and Johnson (1983) compared the effects of cooperative, competitive, and individualized learning experiences on the social development of fourth-grade handicapped and nonhandicapped students. The subjects were 59 students, 12 with severe learning and behavior problems, from a midwestern elementary school. All students were assigned randomly to the three learning conditions. Each condition contained four handicapped students.

Students in each condition worked on two social science units 60 minutes a day for 15 instructional days. The content for the two units was identical for the three conditions, consisting of the wolf as a protected species and the use of coal for energy.
An instructional interaction measure was used to determine the frequency of cross-handicap interaction during instructional sessions. Students also responded to three self-esteem attitude scales. Finally, all students were administered a cooperative and an individualistic learning scale.

An analysis of all data produced the following findings:

1. Cooperative small groups promoted more interactions between handicapped and nonhandicapped peers. There were 49 cross-handicap interactions per hour in the cooperative condition, 17 cross-handicap interactions per hour in the competitive condition, and 6 cross-handicap interactions per hour in the individualistic condition.

2. Students in the cooperative condition had a higher level of general self-esteem (cooperative $\bar{X} = 4.30$, competitive $\bar{X} = 3.79$, and individualistic $\bar{X} = 3.87$).

3. Students in the cooperative condition also had a higher level of school self-esteem (cooperative $\bar{X} = 3.94$, competitive $\bar{X} = 3.19$, and individualistic $\bar{X} = 3.64$).

Lazarowitz, Sharan, and Steinberg (1980) conducted two experiments, one in which the cooperative behavior of students in small groups was compared to that of pupils in whole-class instruction. In a second experiment, children were asked to work on a task, with the option to work alone or with others.
In Experiment One, 243 students in nine classes, grades 3 through 7, served as experimental subjects. One hundred fifty children from parallel classrooms in similar schools served as control subjects. Fourteen matrices were constructed using as an example a marble game developed by Madsen. The experimenter used the game to assess students' judgments about giving payoffs (chocolate coins) to themselves or to others in a cooperative, altruistic, or competitive manner.

Five scales were used to measure the effectiveness of the treatment and control groups. The results, based on an analysis of variance, revealed that pupils from cooperative small-group classrooms were more altruistic-cooperative and less vengeful-competitive in decision making than were students from traditional whole-class instruction (altruism: small group, $\overline{X} = 1.80$, $SD = 1.43$, whole class, $\overline{X} = 1.41$, $SD = 1.42$, $p<.01$; cooperation: small group, $\overline{X} = 6.05$, $SD = 2.42$, whole class, $\overline{X} = 5.31$, $SD = 2.58$, $p<.01$; vengeance: small group, $\overline{X} = .97$, $SD = 1.18$, whole class, $\overline{X} = 1.25$, $SD = 1.37$, $p<.05$; competition: small group, $\overline{X} = 3.16$, $SD = 2.42$, whole class, $\overline{X} = 4.16$, $SD = 2.72$, $p<.001$).

In Experiment Two, the researcher selected 54 groups of five students each from the 18 experimental and control classrooms that participated in Experiment One. Students were randomly selected to avoid having groups containing
the same pupils who had been members of the experimental groups in Experiment One.

Groups of five students each met with the experimenter in another classroom while their regular class was being taught. The students were asked to complete an epigram task. During the 25-minute work sessions, the students' behaviors were carefully recorded.

Two judges analyzed the children's behavior and made evaluations based on six indicators of cooperation and five of competition. The results indicated that pupils from the cooperative small-group classrooms were more cooperative and less competitive than were students from the whole-class models (indicators of cooperation, small-group, \( \bar{X} = 12.44, SD = 7.50 \), indicators of cooperation, whole-class, \( \bar{X} = 8.00, SD = 6.33 \), indicators of competition, small-group, \( \bar{X} = 6.33, SD = 5.75 \), indicators of competition, whole-class, \( \bar{X} = 11.96, SD = 7.99, p < .01 \)).

Two studies were identified that investigated the effects of cooperative and competitive classroom environments on social studies achievement. In the first study, Kniep and Grossman (1979) explored the relationship between cooperative and competitive classroom situations in which high-level questions were the primary teaching strategy. All students (96) from three fifth-grade classrooms of an elementary school in Phoenix, Arizona, served as subjects for the study. The students were randomly
assigned to either a cooperative group, competitive group, or a control group.

The two experimental groups received a 3-week instructional unit focusing on the concepts of land use and change. The content and basic instructional methods were the same for the competitive and cooperative groups. The control group received a series of history lessons from the regular social studies curriculum.

The cooperative groups consisted of five or six students each. Students were cooperatively linked to other members of their group; in other words, individual students could achieve success only if the subgroup was successful.

In the course of instruction on land use and change the teacher required a subgroup response to questions asked. This was accomplished by having the students discuss the questions and reach a consensus before offering a response.

Instruction in the control group took place in a competitive situation. The control subjects were asked not to share work or information. All teacher-questions were directed to individuals.

A criterion instrument, made up of two subtests, served as the source of data. The two subtests measured recall through 40 low-level and 40 high-level questions.
This instrument was administered immediately at the end of the treatment period.

Analysis of the data revealed that the cooperative and competitive groups performed better than the control group on both subtests of the instrument (for the low-level subtest, cooperative group, $\bar{X} = 21.47$, $SD = 6.07$, competitive group, $\bar{X} = 23.38$, $SD = 5.91$, control group, $\bar{X} = 15.72$, $SD = 3.57$, $p < .001$; for the high-level subtest, cooperative group, $\bar{X} = 21.28$, $SD = 6.04$, competitive group, $\bar{X} = 24.69$, $SD = 5.62$, control group, $\bar{X} = 19.16$, $SD = 5.76$, $p < .001$). There were no significant differences between the cooperative and competitive groups on low-level questions, but significant differences were found in favor of the competitive groups over the cooperative groups on the high-level subtest.

In the second study, Wheeler and Ryan (1973) investigated the effects of cooperative and competitive classroom instructional methods on the attitudes and achievement of students involved in social studies inquiry activities. The subjects were 88 fifth and sixth graders from a Minneapolis elementary school. Subjects were first assigned to either a low-anxiety or high-anxiety group based on scores derived from Sarason's Test Anxiety Scale for Children. The students then were randomly assigned to one of three treatments: cooperative, competitive, or control.
Experimental instruction lasted 18 days. Competitive and cooperative groups were taught units on the Iban of Borneo and the Eskimo of Alaska. Control subjects studied a unit of social studies content that differed from the experimental content.

Cooperative and competitive students were tested twice on three measures: (a) a perception test, (b) an attitudes toward social studies test, and (c) an attitudes toward cooperation test. An achievement test was administered to the three groups. No significant differences were found between competitive and cooperative groups on achievement. However, significant differences in achievement were found in favor of the competitive and cooperative groups when compared with the control group ($p < .01$). Additional analyses revealed significant $F$ values in favor of cooperative over competitive situations on these tests: (a) perception, $F = 244.33$, $df = 1/54$, $p < .001$; (b) attitude toward social studies instruction, $F = 5.40$, $df = 1/54$, $p < .05$; and (c) attitude toward cooperative situations, $F = 49.46$, $df = 1/54$, $p < .0001$).

**Advance Organizers**

Ausubel (1969), in a study on the use of advance organizers, determined that the learning and retention of meaningful yet unfamiliar material presented verbally to college students could be facilitated by the advance
introduction of relevant subsuming (advance organizer) concepts. Since this experiment, several analyses of research experiments and a variety of studies have been conducted in order to investigate the effects of using advance organizers to promote learning.

Stone (1983), and Luiten, Ames, and Ackerson (1980) used techniques of meta-analysis to examine published and unpublished studies on the effect of advance organizers on learning and retention. One hundred twelve studies were analyzed by Stone (1983) using Glass's meta-analysis technique. Educational Resources Information Center (ERIC) files were computer searched for 1970-1980, recent indexes were manually studied, and bibliographies in articles were studied. One hundred sixty-six reports were found on the subject of advance organizers. For various reasons, many of the reports were excluded from the study. Twenty-nine studies emerged which qualified for analysis.

In a meta-analysis, the results of each study are expressed as an "effect size" statistic (ES). The 29 studies were analyzed to yield as many effect sizes as possible. "E.S. = \( \frac{\bar{X}_e - \bar{X}_c}{SD_c} \), \( \bar{X}_e \) is the mean posttest score of the treatment group, \( \bar{X}_c \) is the mean posttest score of the control group, and SDc is the standard deviation of the control group" (Stone, 1983, p. 195). Through the use of the above statistical method, one can both compare
a variety of types of studies that may not be comparable by other means and include studies which yield nonsig-
nificant results in an overall analysis. Many gave results for several treatments or substudies; thus 112 effect sizes (results of treatments) were obtained. Results of the analysis revealed that the use of advance organizers did facilitate learning and retention of the material to be learned.

In a similar study, Luiten et al. (1980) also used the Glass technique, in which treatment effects may be standardized and compared using the "effect size" statistic (ES).

\[
ES = \frac{\bar{X}_e - \bar{X}_c}{SD_e}
\]

One hundred seventy published, as well as unpub-
lished, advance organizer studies were located from 1960 to 1979. Several of these studies were replications and were excluded. Also, several references were unobtain-
able, making 135 studies analyzed. The 135 studies pro-
duced 50 ES's for retention and 110 ES's for learning.

The results revealed that advance organizer studies had a small, but facilitative effect on learning and retention. The findings also revealed that advance organizers facilitated learning in all examined content areas and with individuals of all ability and grade levels.
Four studies were identified that dealt with the use of advance organizers in science or health instruction. In the first study, Neisworth (1967) conducted an experiment that used advance organizers, during a unit on accidental poisoning, with adolescents serving as subjects for the study. Ninety students were randomly assigned to 22 organizer groups, and 90 students were assigned to 22 control groups.

Four instruments were developed for the study: a control introductory passage, an advance organizer, a learning passage, and a 30-item multiple-choice test. The subjects remained in regular classrooms as all procedures were being executed. After exposure to the introductory passage and the learning passage for 4 days, the subjects were administered the multiple-choice test. This test was given again after 20 days to measure student retention of the instructional material.

An analysis (t test) was conducted on the multiple-choice test mean scores for the experimental and control groups. The results revealed that the advance organizer groups' scores were not significantly different from the control groups' scores.

Pizzini and Gross (1978) investigated the use of advance organizers to promote fifth graders' learning of an environmental unit in science study. The sample consisted of 66 fifth-grade students randomly selected for
the pretest group, 225 fifth-grade students posttested 1 week following the treatment, and 82 sixth-grade students who were randomly selected for posttesting 1 year after the treatment. The students attended schools in Jasper County, Iowa.

A fifth-grade unit, "Woodlands and Me," was developed to teach students about a wilderness community. The unit was presented to the students prior to a 1-day field experience in a wildlife preserve. The advance organizer phases of the unit were implemented in classes containing a maximum of 24 students each.

Two tests, a Cognitive Knowledge of Woodlands test and a Student Perceptions of Woodlands test, were used to assess treatment effects. Utilizing an analysis of variance, mean scores for the two tests were calculated and analyzed. The results of the cognitive knowledge test revealed that the mean scores on the posttest ($\bar{X} = 8.67$) for fifth-grade students and the mean scores on the posttest ($\bar{X} = 7.57$) for sixth-grade students were significantly greater than the scores on the pretest ($\bar{X} = 6.52$) for fifth-grade students ($p < .001$). The results of the perceptions test revealed that the mean scores on the posttest ($\bar{X} = 4.92$) for fifth-grade students and the mean scores on the posttest ($\bar{X} = 4.85$) for sixth-grade students were significantly greater than the scores on the pretest ($\bar{X} = 4.37$) for fifth-grade students ($p < .001$).
Kahle and Rastovac (1976) examined the effect of using a series of advance organizers in increasing meaningful learning when utilized with sequentially-structured learning materials. The subjects for the study were 116 students in grades 9 and 10 in a rural high school. The subjects were randomly assigned treatment and control groups.

The experimental treatment was conducted for 3 weeks. A series of three units in genetics composed the instructional material for all subjects. The use of an historical narrative with the control group and an audiotutorial type of advance organizer with the experimental group differentiated the two. The narrative and organizer preceded the instructional units and were presented by means of audiotape.

Achievement in both groups was measured by a final 30-item test validated by biology experts. Mean achievement scores between classes were analyzed using a one-way analysis of variance ($p < .05$). A significant difference was found in support of the advance-organizer group. The results suggested that meaningful learning was increased by the effect of advance organizers and sequentially-presented learning materials.

Karahalios, Tonjes, and Towner (1979) used advance organizers in an attempt to improve students' comprehension of a science text. Subjects were 75 seventh-grade
students in a rural junior high school. The subjects were randomly assigned to one of three treatment groups.

Group One was instructed to read the chapter and answer the questions at the end. Group Two received the same directions and was also directed to skim the text before reading it. Group Three received the same directions as the other groups and, in addition, was given a written handout explaining the major concepts. This handout served as an advance organizer.

A 1-week unit on mass and length, derived from a science textbook, was used in the study. The same science text was used for all groups. All groups received printed directions for reading the chapter.

The three groups were given a comprehension test at the end of the treatment period. The results were analyzed using an analysis of variance. The data revealed a significant difference between Group One (read the text) and Group Three (advance organizer) in support of advance organizers as a facilitator of learning (Group One--read the text, \( \bar{X} = 22.27, \text{SD} = 5.43 \), Group Three--advance organizer, \( \bar{X} = 27.58, \text{SD} = 7.71, p < .05 \)).

One study was identified that examined the effects of advance organizers on the learning of mathematics. In this study, Lawton and Fowell (1978) investigated the effects of advance organizers on preschool children's learning of mathematics concepts. The subjects were 36
children attending two preschools in a rural area of Wisconsin. A class of 24 children from Preschool A served as the treatment group. Twelve children from Preschool B constituted the control group. All children attended school a total of 5 hours weekly.

Instructional materials were based on a selection of a set of mathematics concepts typical of traditional preschool mathematics curricula. In the experimental group, mathematics concepts were identified and introduced via advance organizer lessons. The control group was provided instruction relative to the same mathematics objectives, but no advance organizers were employed.

A test battery, consisting of eight tasks, was developed as a pre- and posttest measure. Following the administration of the pretest, the treatment period extended over 7 weeks. All subjects received mathematics instruction 20 minutes a day, twice weekly. In the treatment group, advance organizer concepts were presented by the head teacher to small groups composed of five children each. In the control group, the head teacher demonstrated each new concept to large groups of 15 children. Mean scores, obtained from pretests of both groups, indicated no significant differences between the experimental and control groups (experimental group--\( \bar{X} = 8.13, \ SD = 6.57 \), control group--\( \bar{X} = 7.00, \ SD = 6.63 \)). Posttest data revealed that the experimental group performed
significantly better than the control group (experimental group—$\bar{X} = 15.7$, $SD = 6.16$, control group—$\bar{X} = 9.91$, $SD = 7.02$, $p<.01$). Thus, experimental subjects, who were exposed to relatively general ideas in advance of new mathematics concepts, performed better than control children on the mathematics concept tests.

Three studies were identified that investigated the use of advance organizers in reading instruction. The first study, conducted by Graves, Cooke, and Laberge (1983), examined the effects of previewing difficult short stories on low-ability seventh and eighth graders' comprehension, recall, and attitudes. Two experiments were conducted to investigate the effects of giving these students detailed previews of short stories they were assigned to read.

In Experiment One, subjects were 32 eighth-grade students enrolled in Title I English classes in an inner-city junior high school. Materials included four short stories, a preview for each story, and a test for each story. The preview began with a series of short statements and questions developed to promote interest and to encourage involvement in discussion. Each preview contained approximately 600 words. The four tests consisted of 14 multiple-choice questions.

The treatment period required four class periods, one for each story. Each student received a preview of two of
the stories and no preview for the other two stories. When the preview was completed, the students read the story silently and took the test. Results from the tests revealed that student scores on preview stories were 13% higher on factual questions and 38% higher for inferential questions when compared with scores from non-previewed stories that were tested.

The subjects for Experiment Two were 40 seventh-grade students enrolled in two Title I English classes in the same inner-city school used in Experiment One. Materials included two short stories with previews, an attitude survey, directions for an oral recall task, comprehension questions to be answered orally, and orally-answered attitude questions.

The study was conducted for 2 weeks. One week was required for each story. Each student received a preview for one of the stories and no preview for the other story in a counterbalanced manner. The administration of the treatments was basically the same as in Experiment One.

The results of oral recall revealed that students who received a preview recalled more than twice as much compared to when they did not receive a preview (students receiving previews\(\bar{X} = 24.7, \text{SD} = 19.8\), students not receiving preview\(\bar{X} = 11.5, \text{SD} = 11.8, p<.05\)). The results of the story-answer tests revealed that students scored considerably higher when they received a preview
than when they did not (students receiving preview—$\overline{X} = 17.0$, $SD = 4.2$, students not receiving preview—$\overline{X} = 11.9$, $SD = 4.1$, $p < .05$). There was no significant difference in students' attitudes with or without a preview.

Hansen (1981) conducted an experiment to determine the effects of a prereading strategy on students' reading comprehension. The subjects were 24 second-grade students attending a middle-class suburban elementary school in St. Paul, Minnesota. The students were divided into three instructional groups of eight each. One of the following three conditions (strategy-prereading, question, and control) was randomly assigned to each of the three groups. The Question Group was assigned sets of inferential questions. The Strategy-Prereading Group focused on integrating text information and prior knowledge before reading. The Control Group received traditional story introductions.

A total of 10 stories was taught over a period of 4 days. Four dependent measures were used to compare the comprehension ability of the two experimental groups and the control group. These measures were: (a) comprehension questions following the instructional stories, (b) an experimenter-designed posttest, (c) a free-recall measure, and (d) the reading test of the Stanford Achievement Test. Students in the two experimental groups surpassed control students, performance-wise, on
comprehension questions following the stories (question group—\( \bar{X} = 5.75, \text{SD} = 1.16 \), strategy-prereading group—\( \bar{X} = 7.00, \text{SD} = 2.00 \), control group—\( \bar{X} = 3.50, \text{SD} = .93, \ p < .01 \)). There was a tendency for the scores on the standardized reading test and on the experimenter-designed test to favor the experimental groups, with the group receiving questions doing best. (Results of the Stanford comprehension test for the question group—\( \bar{X} = 85.00, \text{SD} = 1.77 \), for the strategy-prereading group—\( \bar{X} = 80.50, \text{SD} = 3.59 \), for the control group—\( \bar{X} = 77.50, \text{SD} = 5.29, \ p < .01 \); results of the experimenter-designed posttests for the question group—\( \bar{X} = 24.88, \text{SD} = 6.51 \), for the strategy-prereading group—\( \bar{X} = 21.63, \text{SD} = 5.86 \), for the control group—\( \bar{X} = 21.13, \text{SD} = 7.91, \ p < .05 \).) No significant differences were found among the three groups on a free-recall measure.

Proger et al. (1973) conducted two studies which investigated advance and concurrent organizers that were used with detailed verbal passages presented to elementary school pupils. The first experiment compared a non-organizer control group with four types of advance organizers: true-false pretest, completion test, paragraph abstract, and sentence outline. Four sixth-grade reading classes from a suburban school district in Philadelphia, Pennsylvania, participated as subjects.
One hundred twelve students were assigned to one of the five groups by means of stratified randomization.

For the four advance organizer treatments, eight general concepts from a 5 1/2-page passage on Marconi were identified. Each advance organizer treatment dealt with the same eight concepts. Students were not restricted to a time limit during the reading of the advance organizer. A 50-minute period was provided for the reading of the passage itself.

A comprehension test consisting of 25 items was administered to each student after the passage was read. An analysis of variance of mean scores revealed that there was no significant difference among the five methods ($p < .25$).

In the second experiment, a comparison was made of the presence or absence of advance organizers (paragraph abstracts) with the presence or absence of concurrent organization (underlining). The subjects were 80 sixth-grade pupils from the same school district as those in the first experiment but from different classes.

The same procedures used in the first study, a reading passage, and a multiple-choice criterion test, were used in this study. The study design contained four dimensions: (a) concurrent organization (presence or absence of concurrent structuring in the form of underlining key concepts), (b) advance organization (presence
or absence of a sentence outline), (c) reading potential, and (d) levels of test anxiety measured as a pretest. One week before the beginning of the study, test anxiety was measured by administering the Test Anxiety Scale for children. Also, a stratified randomization of treatments was used.

Analysis of variance revealed that, among the factors of advance organization, concurrent organization, and reading level, no significant differences were found for any of the main effects or interactions. However, within the components included with test anxiety, there was a significant interaction among advance organization, concurrent organization, and the test anxiety within reading level (.025 < p < .05). It appeared that for low-test-anxious students concurrent organization was more effective. For high-test-anxious students, the presence of both the advance and concurrent organization was the most effective.

Five studies were located that examined the effects of different types of advance organizers used with social studies materials and instruction. In the first study, Steinbrink (1970) attempted to determine the effectiveness of advance organizers on teaching geography to disadvantaged rural black elementary students. The study involved three teachers and six classes of 156 fifth- and
sixth-grade students. The study was carried out in Hancock County, Georgia.

The treatment materials consisted of a geography unit entitled "Comparative Rural Landscapes," which was developed by the researcher. Students were assigned to one of two groups: (a) a treatment group which used advance organizers with the teaching of the unit, and (b) a control group that was taught the unit without advance organizers. Each of the three teachers taught both an experimental group and a control group. The instructional period lasted 6 weeks.

Posttest achievement scores were used to evaluate the effectiveness of the two methods. Analysis of these scores revealed that the Advance Organizer Group scored significantly higher than the Control Group. The hypothesis that stated no difference would be found in the adjusted posttest achievement of the two groups was rejected at the $p<.01$ level of significance.

Allen (1969) conducted a study which investigated the use of advance organizers with memory level or higher-order questions on the learning and retention of written social studies material. Two hundred twelve ninth-grade students in two junior high schools in Richmond, California, served as subjects.

Learning materials consisted of four single lesson units on Asia. Students in each of 12 classes were
randomly assigned to one of the four following treatment groups: (a) Group One--advance organizers and memory-level questions, (b) Group Two--advance organizers and higher-order questions, (c) Group Three--non-advance organizer introductions and memory-level questions, and (d) Group Four--non-advance organizer introductions and higher-level questions. For 4 consecutive days, students read the treatment materials assigned to their group and on the 5th day completed a 36-item content test. The content test contained five subtests. An alternative form of the test was administered 3 weeks later to measure retention.

A one-way analysis of variance was used to analyze mean scores of the treatment groups. Results revealed that both advance organizers and type of question seemed to have a positive effect on delayed retention. Students at or above the 60th intelligence quotient percentile in the advance organizer groups did significantly better on subtest 5 (higher-order questions on new material) than students who did not receive advance organizers.

The effects of advance organizers on the learning of anthropology materials in the elementary grades was reported by Clawson and Barnes (1972). Thirty-five classes in five schools in the Savannah-Chatham Public Schools in Georgia participated in the study. Twenty third-grade and 15 sixth-grade classes were randomly
assigned to three groups. Then, treatments (pre-organizers, post-organizers, and no organizers) were randomly assigned to groups.

Materials used in the study were prepared by the investigators. The third- and sixth-grade textbooks were published in three formats: (a) pre-organizers, (b) post-organizers, and (c) no organizers. Excluding the three above format exceptions, the textbooks were otherwise identical. The study was conducted over a 24-day period.

Two anthropology achievement tests were administered to the experimental groups at each grade level. The first anthropology test was administered to the third grade after 6 days of instruction. The first anthropology test was administered to the sixth grade after 12 days of instruction. Third and sixth graders were administered the second anthropology test at the end of the treatment period. All four tests were constructed by the investigators. The tests were norm-referenced and contained 30 (third grade) or 45 (sixth grade) multiple-choice items.

A one-way, fixed-effects analysis of covariance was conducted using the mean scores of the three groups on both tests. The computed F ratios, to test the null hypothesis that there was no difference among the mean reading scores, were nonsignificant at the p<.15 level.
Thus, the study did not reveal that pre- or post-organizers aided in the learning of anthropology materials at either the third- or sixth-grade level.

Holzman, Allen, and Layne (1981-1982) assessed the effect of advance organizers on a learning passage from an elementary social studies text. Subjects for the study were two seventh-grade classes from an urban public school. Forty-one students consented to participate in the experiment.

The main learning passage was a 774-word narrative from an upper-level elementary social studies textbook. One of the introductory passages was a 180-word advance organizer. The second introductory passage was a 171-word statement of general interest. Two retention tests were created to evaluate what subjects had learned from the main passage.

Three study conditions were used to test the validity and effectiveness of the advance organizer: (a) reading of the advance organizer and the main passage, (b) reading the general interest introduction and the main passage, and (c) reading of the advance organizer alone. The three study conditions were crossed with the two testing formats, resulting in six treatment conditions. Students were randomly assigned to each of these six situations. Tests were administered immediately after the treatment period and 10 days later to assess long-term retention.
Results, based on an analysis of variance, revealed that the presentation of an advance organizer resulted in significantly greater retention of the main passage \((\bar{X} = 90.45)\) than that which occurred through the presentation of the general interest introduction \((\bar{X} = 68.13)\).

As was expected, students who read only the advance organizer did not perform well on the tests.

The use of advance organizers in the learning and retention of social studies learning materials was investigated by Lawton (1977). The subjects were 120 students randomly selected, in equal numbers, from two age groups, 6-7 years and 10-11 years. For each age group in each primary school in England (two), the 30 students were randomly placed in a control group and two experimental groups.

Instructional materials consisted of: (a) an advance organizer lesson, (b) a subsequent lesson, and (c) an introductory lesson. Social studies learning materials were based on information about the various communities of primitive and present-day man and primitive and present-day farming communities.

All subjects were pretested using a card game-type task response. After the pretest, lessons were administered on a group basis of 10 subjects per group. For each school and each age group in Experimental Group One, the children were first taught the advance organizer.
lesson (35-40 minutes), then the subsequent lesson (35-40 minutes); Experimental Group Two received the advance organizer lesson (35-40 minutes); and the Control Group received first the introductory lesson (35-40 minutes), followed by the subsequent lesson (35-40 minutes).

For posttests, the same card tasks were used. Using chi-square tests, comparisons were made between treatment groups and age groups. The results revealed that experimental groups in both age groups significantly improved their performance on most of the posttest tasks when compared to the equivalent control groups.

Self-Concept

A majority of research related to self-concept study has been conducted within the last 3 decades. Sixteen studies were identified that investigated the role of self-concept in learning situations. Twelve of the self-concept studies dealt with a variety of educational situations and treatment programs. Four investigations, reviewed at the end of this section, dealt more specifically with self-concepts and small groups.

In the first of the 12 general research articles on self-concept, Caplin (1969) investigated the relationship between academic achievement and self-concept of children attending a de facto segregated school compared to children attending desegregated schools. The sample group
consisted of 180 intermediate-grade level children from three elementary schools in a small Eastern city. One school was de facto segregated, one was newly desegregated, and the third school had been desegregated for many years.

Thirty black pupils out of the long-term desegregated school were selected as the base group. These children were in grades 4, 5, and 6. A group of 30 white children from the same school, a group of 60 children (30 whites and 30 blacks) from the de facto school, and 60 children (30 whites and 30 blacks) from the newly desegregated school served as subjects. All students were matched to the base group on the basis of grade, sex, intelligence, and sociometric status.

Analyses of variance were computed on scores derived from the administration of a 50-item intermediate level self-concept scale. Analyses were conducted among and between girls, boys, blacks, and whites. The scores were correlated with scores derived from the Iowa Test of Basic Skills, which had also been administered to each subject.

The results revealed that the self-concepts of children, white and black, attending the de facto segregated school were significantly lower than those of children attending the two other schools. It was also discovered that children having more positive
self-concepts had higher academic achievement. Correlations obtained between the composite scores on the Iowa Test of Basic Skills and the scores on the self-concept instrument was .52; for personal/social qualities .45; and for school-related items .58. All three correlations were significant at the .001 level of significance.

Cotler and Palmer (1970) used self-rating procedures to examine the relationship between self and the academic achievement of students. One hundred fifty-six students from nine classrooms of Grades 4 through 6 from two schools served as subjects.

A substantial portion of the data about academic performance was obtained from intelligence quotient tests, a basic skills test, and a teacher-rating scale for reading and mathematics achievement. A test anxiety scale and a sociometric/self-rating measure were administered in each of the classrooms.

The raw data were converted into Z scores to aid the analyses. Intercorrelations between the sociometric/self-rating measure and the achievement data were significant for girls, while the same comparisons tended to be non-significant for boys. The girls' self-ratings were significantly and positively related to the academic performance data, which indicated that the girls' judgments about themselves were related to their performance in the classroom.
Kokovich and Matthews (1971) evaluated the effects of cross-age tutoring and counseling on student self-image, attitude toward learning, and increased reading skills. Five sixth-grade boys, identified as underachievers and low-ability readers, served as the subjects in the study. These five boys were chosen to serve as tutors for first graders with reading problems. Each student tutor met with an assigned first grader for 30 minutes a week, for 8 months. The tutorial program was directed by the remedial teacher and took place at Tyrone Elementary School in Harper Woods, Michigan.

Academic assessment of the boys was conducted using pre- and posttests of a Gates Reading Survey. Pretest scores ranged from 2.9 to 5.3 grade level. Posttest scores ranged from 4.7 to 6.9 grade level. Data collected with a 16-trait self-concept scale, along with teacher observations and interviews, presented objective evidence that the boys were successful in improving their self-image as a result of the program.

Schulman, Ford, and Busk (1973) used 11 film clips and other teacher-taught materials to improve the self-concepts of children. Subjects for the study were students in nine experimental and eight control classrooms at the sixth-grade level, six experimental and four control classrooms at the seventh-grade level, and four experimental and two control classrooms at the
eighth-grade level. These classes were chosen randomly from five suburban school districts within the metropolitan Chicago area. Experimental and control conditions were assigned randomly within each school building and grade level.

For a 6-week period, experimental teachers taught the program materials to the experimental subjects. The program materials consisted of 11 short film clips, written compositions, and classroom/homework assignments. These activities were designed to stimulate classroom discussion about self-concept. The control groups received no program materials.

All classrooms were administered pre- and posttest batteries 1 week before and 1 week after the study was completed. The battery included a 50-item self-esteem instrument for students and an 8-item peer-comparison instrument in academic and social areas.

Each classroom, rather than each student, was analyzed. The results of the analyses revealed that the teaching of the "Self-Concept Unit" resulted in the experimental students rating themselves higher on the 50-item self-esteem measure. The scale for the 50-item self-esteem instrument ranged from 8 to 40 points. A classroom that reported honestly on this instrument would, on a normal distribution of responses, have a score close to 24 points. The experimental students in the study
rated themselves closer to 24 points on the posttest ($\bar{X} = 18.15$). Control students rated themselves lower (closer to 8 points) on the posttest ($\bar{X} = 17.80$). Experimental students also rated themselves higher on the 8-item comparison measure (experimental students--$\bar{X} = 69.19$, control students--$\bar{X} = 67.59$).

The relationship between academic achievement in science and self-concept was explored by Alvord and Glass (1974). Subjects for the study were pupils who were randomly drawn from all Iowa public school pupils in grades 4, 7, and 12. The following number of students served as subjects for the study: (a) Grade 4, 1,105 students; (b) Grade 5, 1,099 students; and (c) Grade 12, 958 students.

Separate science measures were used for each grade level. These measures were composed of exercises obtained through the National Assessment of Educational Progress. The Instructional Objectives Exchange developed the two self-concept measures used by subjects in all three grade levels. Both measures contained four subscales: (a) general, (b) family, (c) peer group, and (d) scholastic.

Comparison of the achievement and self-concept scores revealed significant positive correlations between the scholastic-dimension of self-concept and science achievement for all three grade levels. The correlation between
science achievement and self-concept for Grade 4 was .3239, p<.05; for Grade 7 it was .3311, p<.05; and for Grade 12 it was .3823, p<.05. Significant correlation (.2609, p<.05) also was found between peer group influence and science achievement for the fourth grade.

The relationship between self-concept and achievement was also investigated by Marx and Winne (1975). In this study, 38 fifth-grade children and 60 sixth-grade children from a predominantly black, low socioeconomic school served as subjects. The children were chosen using a random sample of each classroom.

The children were administered the Stanford Achievement Test by their teachers. Scores on the quantitative and the verbal subtests were treated as separate measures. Soon after, the children were administered the revised Sears Self-Concept Inventory by trained examiners. Scores were divided into an academic self-concept subtest and a social self-concept subtest.

The results revealed that girls had significantly higher achievement scores on both subtests than did boys. There were no differences between grades on the self-concept measures. The data from this study strongly suggested that, for the population sampled, academic self-concept was more related to social self-concept than it was to academic achievement. For this study, the relationships between achievement and self-concept subtest
scores were mixed. Academic self-concept was positively related to verbal and quantitative achievement. However, the achievement measures had statistically significant negative correlations with social self-concept. The correlations between social self-concept and verbal achievement was -.23, and between social self-concept and quantitative achievement was -.36.

Aspy and Buhler (1975) investigated the relationship between teachers' inferred self-concept and the cognitive growth of students. The subjects for the study were six third-grade teachers and 20 students from each of the teachers' classes selected equally on the basis of highest and lowest intelligence test scores.

The six third-grade teachers were observed for 1 hour in September and 1 hour in March by three trained raters. The raters completed a checklist on each of the teachers. The checklist was designed to assess self-concept. The checklist was completed after each of the two visits. During September each teacher completed a self-concept scale based on Fiedler's Q-Sort procedure.

The students were administered five subtests of the Stanford Achievement Test during September and again in May. Students' academic gain or loss was measured by the differences between the scores. The subtests were: (a) paragraph meaning, (b) word meaning, (c) spelling, (d) word study skills, and (e) language.
An analysis of variance for each of the subtests combined with teacher self-concept scores revealed that students of high self-concept teachers, on four of the five subtests, showed significant gains compared to the students of teachers having lower self-concepts. The levels of self-concept of teachers, then, related positively to the cognitive growth of the students taught by these teachers. These relationships were significant at or above the $p<.05$ level. On spelling, the differences were negative but not significant.

The effects of within-class reading grouping on the self-concept of elementary students were assessed by Wonsiewicz (1976). The subjects were 257 students enrolled in 12 third-grade classrooms that used within-class reading grouping. Students in the study were divided between high-, medium-, and low-reading groups.

During September 1974, and May 1975, three self-concept scales were administered to the subjects: (a) the Piers-Harris Test, (b) a Semantic Differential Rating Scale, and (c) My Reading Group Rating Sheet. An inventory assessing competitiveness also was administered to all subjects.

The major results of the study were:

1. Significant differences were found for self-concept among the three reading groups on the Piers-Harris and the Semantic Differential Rating Scale.
2. The children who had moved to a higher reading group had a significant increase in level of self-concept on the Piers-Harris Test.

3. The high reading group more frequently expressed feelings of competitiveness when compared to the middle and low reading groups.

Rogers, Smith, and Coleman (1978) evaluated the importance of the social environment (classroom) on the self-concept and academic achievement of underachieving elementary students. Subjects for the study were 159 academic underachievers in 17 classrooms in seven elementary schools of a large metropolitan school system.

The subjects were administered two tests: (a) the Metropolitan Achievement Test, and (b) the Piers-Harris Children's Self-Concept Scale. Two series of analyses were computed. First, all subjects were pooled together and rank ordered on the basis of achievement test scores. On the basis of these rankings, children were assigned to either a high-, medium-, or low-achievement group for mathematics and for reading.

Second, participants were rank ordered within each classroom according to their performance on both mathematics and reading. Within each class, for each of the two above categories, the subjects were assigned to one of three groups: high-, medium-, or low-academic achievement.
Analyses of variance were computed for mathematics and reading achievement, with composite self-concept scores serving as the dependent measures. Analysis of assignment to high-, medium-, or low-achievement groups based on within-classroom reading achievement revealed significant group differences in mean composite self-concept scores ($p<.007$). On all self-concept scores, the high-reading-achievement group obtained the highest mean self-concept score, the low-reading-achievement group obtained the lowest mean self-concept score, and the medium-achievement group scored in the intermediate range.

Significant group differences also were revealed when high, medium, and low groups were formed on the basis of mathematics achievement ($p<.0001$). Comparisons revealed that low mathematics achievers obtained lower self-concept scores than either medium or high achievers. However, medium and high achievers did not significantly differ on self-concept scores. The mean discrepancy between high- and low-achievement groups was 12.8 points.

Way (1981) explored the effects of multiage grouping on elementary school students' achievement and self-concept. The subjects of the study were 145 students from three elementary schools in a suburban school district. Each school had both single-age and multiage grouping in their classrooms. The multiage groups
included: (a) classrooms of 6- and 7-year olds, (b) classrooms of 8- and 9-year olds, (c) classrooms of 9- and 10-year olds, and (d) classrooms of 8-, 9-, and 10-year olds. Two single-age classrooms also were used in the study, bringing the total number of participants to 231 students.

The Comprehensive Test of Basic Skills provided the achievement data. Self-concept was measured using the Piers-Harris Self-Concept Scale. Achievement and self-concept data were collected from each of the multi- and single-age classrooms.

There were no significant differences found on any of the achievement measures ($p<.05$). The multiage classrooms had significantly higher mean scores on the Happiness and Satisfaction section of the self-concept scale ($p<.05$).

Campbell (1981) investigated the relationships between self-concept, achievement, and intellectual development. The subjects for the study were 51 second-grade students enrolled in a bi-ethnic school located in an urban setting.

The Stanford Achievement Test was administered to measure achievement in the areas of reading (word recognition and comprehension), social studies, science, and listening. The Piers-Harris Self-Concept Scale was used to measure changes in student self-concepts.
Intellectual development was measured by using seven Piaget-like tasks that were administered by trained interviewers.

Analysis of the data revealed significant positive relationships between reading achievement word recognition ($r = .60, p < .001$), comprehension ($r = .48, p < .001$), social studies achievement ($r = .40, p < .05$), science achievement ($r = .50, p < .05$), listening comprehension achievement ($r = .38, p < .001$), and the self-concept total score. There was a significant positive correlation ($p < .05$) between self-concept and four of the intellectual tasks: (a) length, (b) area, (c) weight, and (d) volume. The researcher concluded that self-concept enhancement is more a function of higher levels than lower levels of thought.

A comparison of self-concept and attitude toward school was conducted by Metcalfe (1981). A sample of 88 boys and 94 girls from schools in a North of England conurbation was divided into two groups: (a) 70 boys and 65 girls, aged 11 years plus, made up the experimental group; and (b) 18 boys and 29 girls, aged 11 years plus, served as the control group.

Two instruments were used in the study: (a) The Attitude to School Questionnaire, which is a self-report measure designed for children aged 9-11 years, and (b) the Piers-Harris Children's Self-Concept Scale.
The researcher attempted to evaluate the following hypotheses:

1. There would be significant differences in the mean scores on the self-concept measure of students tested during their final year in primary school, and again, after 1 year of secondary school.

2. There would be a significant increase in the self-concept scores of low self-concept students in their last year of primary school and in their scores when retested a year later in secondary school.

3. There would be a significant difference in the attitudes toward school of students with high self-concepts and those with low self-concepts.

The results of an analysis of variance for the mean scores on the self-concept test revealed no significant differences for the experimental group of boys and the experimental group of girls between the pre- and post-testing ($p < .01$). When the students were divided into high or low self-concept scorers, high scoring boys and girls on the pretest scored significantly lower on the posttest ($p < .01$). Significant positive differences were found in the attitudes of students who had high self-concept scores compared to students who had low self-concepts. It appeared that boys and girls with high self-concepts held more positive attitudes toward school than their low self-concept counterparts.
In the first of four studies dealing with small groups and self-concept, Ames (1981) examined the effects of competition and cooperation on students' achievement attributions and their feelings of deservingness of reward and feelings of satisfaction. The subjects were 84 fifth-and sixth-grade students randomly selected from 10 classes from four rural Maryland county schools. The subjects were randomly assigned first to an individual performance situation and then to a reward-structure situation. Pairs of children then were randomly formed with the two members assigned to the same cooperative condition but to differing individual conditions. In the individual situation, one member worked on a high-level task while the other member worked on a low-level task.

A puzzle-task that was achievement related was selected. The students worked independently but simultaneously on their set of puzzles. The outcome of a child's individual performance was determined by the number of puzzles that could be solved in a set of six puzzles.

In the competitive, individual situation, children were told that the student who solved the most puzzles would be the one to receive a prize. In the cooperative-reward situation, the paired children were told that both would win a prize if they solved all six puzzles.

Each pair of students was tested individually. After the completion of the puzzle tasks, each child was
administered three measures: (a) a questionnaire which asked the students to evaluate their own performance, (b) a measurement of perceptions of deservingness of reward, and (c) a measure to determine feelings of satisfaction.

The results on the self-perceptions measures, based on analysis of variance, revealed that subjects classified as high in self-concept achieved significantly higher Piers-Harris scores ($p < .001$), but lower anxiety scores ($p < .001$), than the subjects classified as low in self-concept. In the competitive reward situations, high self-concept students rated their ability higher than low self-concept students following success ($p < .05$), but lower than low self-concept students following failure ($p < .05$). There was a tendency for high self-concept students to rate their ability higher when they succeeded in competitive rather than in cooperative conditions. A significant main effect on the self-congratulations measure revealed that high self-concept students participated in significantly more frequent self-congratulatory behavior following success than did low self-concept students ($p < .001$).

Summerlin, Hammett, and Payne (1983) investigated whether participation in an affective small-group program would have an effect on children's self-concept. The subjects for the study consisted of 39 first graders from two first-grade classes in a suburban school of Houston.
The children were randomly assigned to two groups—experimental and control. The experimental group was divided into two groups to enable the treatment procedure to be conducted in a small-group setting.

The experimental subjects attended a 25-minute Magic Circle session three times a week for 3 months. The Magic Circle program concentrated on emotional and social development. The control group followed the regular classroom routine.

The Primary Self-Concept Inventory was administered to all subjects to assess self-concept. This inventory consisted of 20 items designed to measure several aspects of self-concept. The test was administered 1 week after completion of the study.

A multivariate analysis of variance (MANOVA) was computed on the self-concept inventory scores of the experimental and control groups. The treatment experienced by the children in the experimental small groups resulted in significantly higher scores on both the social self-domain subtest and the total self-concept ($p < .01$).

In a similar study, Gold (1983) also evaluated the effects of the Magic Circle small-group program on the self-concepts of fourth-grade students. The subjects for the study were 183 fourth-grade students from four suburban schools in New Jersey. The students were
assigned to four experimental classes and four control classes. The four experimental teachers were trained in the use of the Magic Circle program.

The subjects were pre- and posttested using the Primary Self-Concept Inventory and the Developmental Profile Scales. Scores were compared using an analysis of covariance. The results revealed that the Magic Circle program was not effective in increasing self-concept scores for the experimental subjects.

Madden and Slavin (1983) evaluated the effects of cooperative small-group learning on the social acceptance of academically handicapped students in mathematics instruction. The subjects were 183 third, fourth, and sixth graders from a school located in Baltimore. Forty of the subjects were identified as being academically handicapped.

Two instructional methods were used. The cooperative learning method used a cooperative reward structure and a cooperative task structure in the classroom. Students were assigned to mixed-ability teams. The control method used the same curriculum and instruction procedures, but students studied individually.

A structured mathematics curriculum was used for both treatments. The treatment conditions remained in effect for 7 weeks and were used 1 hour a day, 5 days a week during mathematics instruction.
Several measures were used to assess social acceptance of mainstreamed children by their normal-ability peers and to assess the achievement and attitudes of both. A sociometric measure of peer-social acceptance, a mathematics achievement measure, and a standardized self-concept measure were administered to all subjects.

The effect of the treatment was analyzed using a one-way analysis of covariance. Results revealed that the cooperative techniques resulted in a significant decrease in the rejection of handicapped students by normal-ability students ($p < .01$). There were no significant differences between treatment groups on the number of handicapped students chosen as friends or workmates. Gains were found in the academic achievement and self-esteem of students in the cooperative learning treatment ($p = .055$).

**Jigsaw Small-Group Approach**

Elliot Aronson and his associates (Aronson, Blaney, Sikes, Stephan, & Snapp, 1975) developed a method of classroom instruction that incorporated the beneficial features of small-group cooperation and peer-teaching into the tightly structured environment of the traditional classroom. The researchers referred to this approach as the "Jigsaw." Four studies, conducted after the Aronson
report, were found that investigated the effects of the Jigsaw Approach.

The first of these studies was conducted by Lucker, Rosenfield, Sikes, and Aronson (1977). The subjects for the study were fifth- and sixth-grade students. Students in six classrooms were taught with the Jigsaw Approach for 2 weeks and students in five classrooms, serving as controls, were taught in a traditional manner for 2 weeks. All groups were composed of a balance of white and minority students.

The experimental students were placed in small peer-teaching groups of four to six members each. The groups met for 40 to 45 minutes daily during the 2-week session. The material presented to the groups came from a unit on Colonial America derived from students' fifth- and sixth-grade textbooks and supplemental materials. The traditional classes also were taught using the same material.

Social studies achievement was measured by administering a social studies pre- and posttest designed to measure achievement gained from the 2-week session. An analysis of covariance was performed on all subjects' mean scores.

The results revealed that whites performed equally well in both the Jigsaw Approach and in the traditional classes. However, minority children performed
significantly better in the Jigsaw programs than in the traditional classes ($p < .01$).

Geffner (1978) investigated the effects of the Jigsaw Approach and other grouping approaches on the attitudes, self-esteem, inter-ethnic relations, and intra-ethnic perceptions of elementary school students. The subjects for the study were 218 fifth-grade students in 10 classes from four schools in the Santa Cruz County School System of California.

Four classes were taught with the Jigsaw Approach for 3 hours a week for 8 weeks. Two classes were taught with less structural cooperative procedures; two classes used a structured, noncooperative approach; and two classes were taught using traditional competitive methods. All classes consisted of approximately 50% whites and 50% Mexican Americans.

The measures used to assess the effects of the various treatment methods included: (a) a student attitude questionnaire, (b) the Pictorial Self-Concept for Children, (c) a peer-opinion questionnaire, and (d) a roster and a sociometric measure, both used to assess inter- and intra-ethnic liking.

The results revealed that the cooperative methods of teaching produced significant beneficial outcomes for the students regarding attitude, liking for classmates, general self-image, and inter-ethnic liking. The Jigsaw
Approach improved students' self-esteem the most; the traditional method produced lower self-esteem.

In the third study, Bridgeman (1981) examined the effects of cooperation on role taking and moral reasoning in elementary students. The subjects were 120 students from six fifth-grade classes.

Students were randomly assigned to either experimental or control groups. In the two experimental classrooms, students worked together for 8 weeks in small, six-person Jigsaw groups. Two of the four control groups used small, loosely structured group learning techniques (noncooperative) and the remaining two control groups used a traditional, teacher-centered approach.

The same California history curriculum was used as the unit for social studies instruction in all classrooms. Two measures were used to evaluate treatment effects: (a) a moral reasoning dilemma interview, and (b) a role-taking measure based on six cartoon stories.

The results revealed that role-taking was enhanced by the Jigsaw Approach ($p<.05$). There were no significant changes in moral reasoning for the treatment or control group subjects.

The fourth study, conducted by Moskowitz, Malvin, Schaeffer, and Schaps (1983) assessed the effects of the Jigsaw Small-Group Approach on students' attitudes and behaviors. Subjects for the study were 261 fifth- and
sixth-grade students from eight suburban elementary schools in northern California. The schools were paired, based on common characteristics. One school from each pair was randomly assigned to an experienced condition, and the other school was assigned to the control condition.

The experimental teachers implemented the Jigsaw for 2 hours a week for 1 year. The control teachers were teachers who had been willing to train in the Jigsaw had it been offered to them.

The measures used to evaluate outcomes included: (a) a process evaluation to monitor the implementation of the Jigsaw, (b) student self-reports which measured such items as attitudes toward peers and academic/social self-esteem, and (c) the assessment of achievement based on scores derived from the Stanford Achievement Test.

The results revealed that, compared to control students, exemplary students in Jigsaw classes initially liked the teaching climate better ($p < .001$), and liked school better ($p < .001$). Treatment students perceived their classrooms as less competitive. Also, compared to their controls, sixth-grade students viewed their classrooms as more cooperative ($p < .01$). However, there was no significant improvement in school attitudes and self-concept in any of the classes. Furthermore, fifth-grade treatment students had lower self-esteem ($p < .01$).
Summary

A review of the related literature revealed that numerous studies have been conducted in the areas of small groups, advance organizers, and self-concept. The review also revealed that a limited number of studies have been conducted in the specific area of Jigsaw cooperative small-group instruction.

The information was mixed as to the effectiveness of small-group instruction on student achievement, attitudes, interactions, and self-concept. However, the majority of studies that involved cooperative small-group instruction clearly supported such methodologies as being beneficial to students in both a cognitive and a social sense.

The review of literature was mixed as to the effectiveness of advance organizers as aids to the retention of information. In particular, two meta-analyses of advance organizer studies were reviewed, one in which the results of the analysis clearly supported the use of advance organizers as facilitators of learning. The other meta-analysis showed that advance organizers had only a limited effect on the retention of information.

Due to the nature of this study, a review of the importance of self-concept on student achievement, social development, and attitudes was included. A majority of the studies showed that a positive self-concept can have a significant, positive effect on academic achievement.
Three studies also were identified that clearly supported the use of cooperative small groups as being beneficial to positive self-concept development.

Research studies that have investigated the use of the Jigsaw Approach are limited in numbers. The results obtained from a review of the Jigsaw literature were mixed regarding the effects of this approach on student achievement, attitudes, self-concept, and social behaviors.
CHAPTER III

Procedure

The purpose of this study was to determine whether significant differences existed in the self-concept and social studies achievement of third-grade students receiving instruction in Jigsaw cooperative small groups, using advance organizers, and third-grade students in a control class receiving conventional instruction. The experimental instruction in the study was provided for small groups based on Elliot Aronson's Jigsaw Small-Group Approach. Four specific types of advance organizers (summaries, outlines, key terms, and questions) also were used in the experimental instructional program as a means of organizing content material.

To conduct the study, four experimental third-grade classes were formed. The four classes were provided social studies instruction in the Jigsaw Small-Group Approach. Also, each class was randomly assigned one of the four types of advance organizers.

A fifth third-grade class served as the control group. In this class, the teacher served as the major
source of instruction. Instruction was provided in a large-group (conventional) situation.

This chapter includes a description of the population that participated in the study, the Jigsaw Small-Group Approach, the textbook, the advance organizers, the instructional materials, and the assessment instruments. The methodology used in the investigation and the statistical analyses also are described.

**Description of the Population**

The population for the study included members of third-grade classes at Thompson Elementary School of the Shelby County School System in Alabaster, Alabama. The population of the school consisted of 1,400 students enrolled in kindergarten through grade 5. The school had 70 full-time classroom teachers. Nine third-grade classes were available to participate in the study. Five of the nine classes were randomly assigned to the four experimental classes and the one control class.

To complete the random selection, the investigator used two sets of ping-pong balls (nine balls per set). Nine of the balls were labeled 1-9 and placed in a box. As the third-grade teachers selected ping-pong balls, their names were listed on a board in numerical order according to the number drawn. The nine teachers then, according to their order on the board, drew from the
second set of ping-pong balls. The second set of balls contained five that were labeled either (a) summaries, (b) outlines, (c) key terms, (d) questions, or (e) control. The five teachers who drew the labeled balls were selected to participate in the study. The four remaining balls were unlabeled.

Description of the Jigsaw Small-Group Approach

The small-group method employed in this study was similar to the Jigsaw Approach developed by Elliot Aronson and associates for use in the public school system of Austin, Texas, during the 1970s (Aronson, Blaney, Stephan, Sikes, & Snapp, 1978). The Approach was created to aid the school system in avoiding conflict and violence that was occurring among students due, in part, to hastily ordered desegregation by busing.

Aronson et al. (1978) believed that a great deal of the problems encountered in Austin may have been attributed to the competitive atmosphere prevalent in traditional classrooms. In The Jigsaw Classroom they stated,

When schools are massively desegregated in most American cities, students are competing with each other on unequal ground. Specifically, in most communities the ghetto is not known for its superior educational facilities; existing conditions can completely frustrate even the most gifted teacher. Consequently, just prior to busing, the knowledge, reading skills, intellectual curiosity, and ability to compete, in cognitive skills of most
minority-group members is probably inferior to that of their white counterparts. Thus the typical black or Chicano student entering the new classroom finds himself/herself in a highly competitive situation where he/she is virtually guaranteed to lose. Is it any wonder that minority children in newly desegregated schools experience an increase in anxiety and a decrease in self-esteem?

(p. 25)

The idea that classroom competition may be harmful to student success may have implications for most elementary classrooms. The issue of competition versus cooperation led this investigator to explore the benefits of cooperative small-group instruction on student self-concept and achievement.

In opposition to the traditional, competitive situation found in classrooms, Aronson et al. (1978) stated,

The successful students ... often hold the unsuccessful students in contempt, considering them to be dumb and uninteresting. The result is that, to a greater or lesser extent, the (competitive) process which takes place in most elementary school classrooms is virtually guaranteed not to promote friendliness, understanding, and cooperation among the children. (p. 22)

The Jigsaw Approach makes use of cooperative small groups as opposed to the competitive large-group atmosphere found in conventional teacher-controlled classrooms. The traditional role of teachers as experts are changed so that they are no longer the major source of
instruction. In time, the children, through peer teaching, depend on each other to learn their material.

The following is a brief description of the Jigsaw Approach by Aronson et al. (1978):

1. The classroom is divided into groups (ideally five or six members per group) of students of mixed racial backgrounds and achievement levels.

2. Teams are organized so that children can begin to learn the importance and "how-to" of working together, listening to classmates, and competing as groups rather than individuals. Activities can include completed square puzzles, student interviews, brainstorming, and self-evaluation.

3. Special roles in the classroom are developed. Basically, two roles merit special consideration: that of teacher and of student group leader. The teacher's role should be that of facilitator, moving from group to group, checking on group progress, and being ready for any problems that may develop. The teacher also should serve as a consultant and an information resource.

The group leader is very important to the success of the Jigsaw Approach. For example, when the teacher feels compelled to intervene, the group leader should serve as a liaison between teacher and group as often as possible. Other duties of the group leader include: (a) helping the group get organized, (b) keeping the group on task,
(c) modeling productive member behavior, (d) asking questions to clarify/inform, (e) being patient and understanding, (f) assigning duties to group members, and (g) encouraging feedback.

4. Activities and materials are well organized in advance. By teaching an assigned amount of material, each group member serves as a teaching resource. Then the members of each group merge into subgroups composed of members from the other groups who are assigned to teach the same lesson segment. After a period of time, all members merge back into their regular groups. The students have responsibility for teaching their material to the rest of the group.

Description of the Textbook

The textbook used in this study was The Metropolitan Community (White et al., 1982). The instructional text material consisted of 11 chapters from the social studies textbook. The 11 chapters were of varied length and contained numerous topics (see Table 1). The writers of The Metropolitan Community stated:

The Metropoligan Community uses as its topical vehicle the study of the large metropolitan community. It expands the subject matter of the previous level, Learning About Communities, which deals with the origins and composition of communities, including the more intimate local community with which pupils can identify. For many students the distinction between their local community
and the metropolitan community . . . is hard to define. Thus the study of the metropolitan community is especially necessary.

In general, the themes of The Metropolitan Community continue to follow the lines of systematic investigation of human societies. Thus [the] systematic investigation of The Metropolitan Community is as follows:

1. Geography
2. History
3. Goods and trade
4. People and the groups to which they belong
5. People and groups in terms of their culture and cultures
6. Problems, ongoing changes, and ideas about how the people in cities cope with problems and changes. (pp. A15-A16)

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Length</th>
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<tbody>
<tr>
<td>1</td>
<td>The World and the United States</td>
<td>pp. 1-13</td>
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<td>2</td>
<td>Spaceship Earth</td>
<td>pp. 15-33</td>
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<tr>
<td>3</td>
<td>Our Environment</td>
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<td>4</td>
<td>Studying a Community</td>
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<tr>
<td>5</td>
<td>A Story About the City of Progress</td>
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<td>6</td>
<td>Metropolitan Communities</td>
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<td>7</td>
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<td>People and Cultures in a Metropolitan Community</td>
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<td>Work and Trade in the City</td>
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<td>10</td>
<td>City Services</td>
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<tr>
<td>11</td>
<td>Government and Freedom</td>
<td>pp. 223-255</td>
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</table>
Description of the Advance Organizers

Four types of advance organizers were used in this study. Advance organizers—summaries featured a synopsis or comprehensive coverage of the textbook material condensed and written in narrative form (see Appendix A). Advance organizers—outlines featured the major topics found in the textbook material outlined as they appeared in the text (see Appendix B). Advance organizers—key terms featured the use of special attention words found throughout the social studies textbook (see Appendix C). Advance organizers—questions featured questions that were developed from the text material and arranged in sequential order. The questions usually were based on major topics and vocabulary derived from the text material (see Appendix D).

Instructional Materials

The instructional materials used in this study consisted of direction sheets, the four types of advance organizers previously described, and question sheets. The direction sheets (see Appendix E) were developed for the Jigsaw group leaders. These sheets provided the leaders with detailed instructions concerning the oral reading of the advance organizers and the pages to be read silently and orally from the text. The directions also
provided instructions regarding the use of the question sheets.

These sheets (see Appendix F) consisted of varied numbers of questions developed from the assigned text material. These questions had to be answered by the students during the subgroup phase of the Jigsaw Approach. Each question was coded with a star, circle, square, or triangle. Students previously had been assigned one of the four codes by the investigator. In any given Jigsaw group, there was at least one student assigned to each of the different codes. Students, on being reorganized into subgroups, were responsible for answering the questions marked with their codes. For example, if two students in a six-member Jigsaw group had been assigned a triangle code, they were responsible for answering all triangle-coded questions on the question sheet during the subgroup phase. The question sheets contained both literal and interpretative items. All experimental classes received identical question sheets.

The development of the group leader direction sheets, four types of advance organizers, and the question sheets was the sole responsibility of the investigator. Every effort was made to ensure, whenever possible, that no advance organizer contained significantly more or different information than the other types of organizers.
Description of the Assessment Instruments

The assessment instruments used in the study consisted of two self-concept scales and a 60-item social studies test. The two self-concept scales used in the study were the Piers-Harris Children's Self-Concept Scale (Piers & Harris, 1969) and the Inferred Self-Concept Scale (McDaniel, 1973). The Piers-Harris Children's Self-Concept Scale was chosen as the instrument for children to rate their self-concepts (see Appendix G). This test was selected based on information contained in The Seventh Mental Measurements Yearbook (Buros, 1972) and on the recommendation of counselors and resource teachers in the Shelby County School System. This test required a maximum of 30 minutes to administer, was easy to score, and had good reported reliability and validity. An analysis of results obtained from the pre-evaluation administration of the Piers-Harris Children's Self-Concept Scale revealed a Spearman-Brown split-half reliability coefficient of .90.

The Inferred Self-Concept Scale was selected as the instrument for teachers to rate the self-concepts of their homeroom students (see Appendix H). Reported analyses revealed that the Inferred Self-Concept Scale was both reliable and valid. The scale was a quick method for appraising the self-concepts of individuals from different classes and cultures. This test also was recommended by
counselors and resource teachers in the Shelby County School System.

Internal reliability, based on pre-evaluation scores of the scale, was determined by using the Kuder-Richardson Formula (KR20). The results revealed a reliability coefficient of .93.

The 60-item social studies test was developed by the investigator (see Appendix I). This multiple-choice test was created to measure student recall on specific facts and details that had been presented in the 11 chapters of the social studies textbook used with the students participating in the study.

The test was validated by presenting copies to three third-grade faculty members at Thompson Elementary School who were not involved in the study. The teachers were asked to judge each item according to the following criteria:

1. The items should accurately measure the material presented in the text.

2. The items should be written on a third-grade reading level.

3. No ambiguous or conflicting items should be included on the test.

After an analysis by the three teachers, the test items were rewritten by the investigator. The investigator and the three faculty members agreed upon a final
test of 60 items. An analysis of results obtained from a pretest administration of the 60-item social studies test revealed a Spearman-Brown split-half reliability coefficient of .89.

Methodology

The investigator was solely responsible for developing all methodological procedures used in this study. To begin the study, a conference was held with the principal of the school and the five teachers who were selected to participate. During the conference the methodology (use of Jigsaw groups and advance organizers) was explained to the four teachers selected to work with the experimental classes. The investigator informed the control-class teacher that her class would be involved in a study that used small groups and advance organizers to improve students' academic achievement and self-concept during social studies instruction. The control-class teacher was asked not to use small-group instruction during the experimental period of the study.

The investigator conducted two Jigsaw workshops in the fall of 1983, each 1 hour in length, for the four teachers of the experimental classes. The purposes of the workshops were: (a) to describe the Jigsaw Approach to the teachers, and (b) to explain to the teachers their specific duties when delivering Jigsaw group instruction.
During the week in which the Jigsaw workshops were conducted, permission to conduct the study was obtained from the Shelby County Board of Education. This permission was granted through the Office of the Coordinator of Instruction for Shelby County schools.

The principal, five teachers, and the investigator then developed a schedule for the study, identifying times and dates to administer the pre- and post-evaluations/tests and conduct the experiment. The pre- and post-evaluations/tests were to include the Piers-Harris Children's Self-Concept Scale, the Inferred Self-Concept Scale, and the 60-item social studies test. The pre-evaluations/tests for each of the five classes (four experimental and one control) were administered during a 1-week period prior to the beginning of the investigation. The post-evaluations/tests for each of the five classes were administered after 14 weeks of instruction (see Table 2).

Table 2

<table>
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<th>Implementation Schedule</th>
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<tr>
<td><strong>Weeks (1984)</strong></td>
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<td>Week 1</td>
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<td>1/9-1/13</td>
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Table 2--Continued

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<td>Week 3</td>
<td>Jigsaw and advance organizer training period (Chapter One)</td>
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<td>1/23-1/27</td>
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<td>Week 4</td>
<td>Instruction provided (Chapter Two)</td>
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<td>1/30-2/3</td>
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<td>Week 5</td>
<td>Instruction provided (Chapter Three)</td>
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<td>2/6-2/10</td>
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<td>Week 6</td>
<td>Instruction provided (Chapter Three)</td>
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<td>2/13-2/17</td>
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<td>Week 7</td>
<td>Instruction provided (Chapter Four)</td>
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<td>2/20-2/24</td>
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<td>Week 8</td>
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<td>Week 9</td>
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<td>3/5-3/9</td>
<td></td>
</tr>
<tr>
<td>Week 10</td>
<td>Instruction provided (Chapter Six)</td>
</tr>
<tr>
<td>3/19-3/23</td>
<td></td>
</tr>
<tr>
<td>Week 11</td>
<td>Instruction provided (Chapters Six and Seven)</td>
</tr>
<tr>
<td>3/26-3/30</td>
<td></td>
</tr>
<tr>
<td>Week 12</td>
<td>Instruction provided (Chapters Seven and Eight)</td>
</tr>
<tr>
<td>4/2-4/6</td>
<td></td>
</tr>
<tr>
<td>Week 13</td>
<td>Instruction provided (Chapters Eight and Nine)</td>
</tr>
<tr>
<td>4/9-4/13</td>
<td></td>
</tr>
<tr>
<td>Week 14</td>
<td>Instruction provided (Chapter Nine)</td>
</tr>
<tr>
<td>4/16-4/20</td>
<td></td>
</tr>
<tr>
<td>Week 15</td>
<td>Instruction provided (Chapter Ten)</td>
</tr>
<tr>
<td>4/23-4/27</td>
<td></td>
</tr>
<tr>
<td>Week 16</td>
<td>Instruction provided (Chapters Ten and Eleven)</td>
</tr>
<tr>
<td>4/30-5/4</td>
<td></td>
</tr>
<tr>
<td>Week 17</td>
<td>Instruction provided (Chapter Eleven)</td>
</tr>
<tr>
<td>5/7-5/11</td>
<td></td>
</tr>
<tr>
<td>Week 18</td>
<td>Post-evaluations/tests</td>
</tr>
<tr>
<td>5/14-5/18</td>
<td></td>
</tr>
</tbody>
</table>
The Piers-Harris Children's Self-Concept Scale consisted of 80 yes-no responses. The investigator administered the instrument in approximately 25 minutes. As each item was read to them orally, the students marked their answers on a standard answer sheet. The answers were hand scored by the investigator.

The Inferred Self-Concept Scale was a 30-item instrument requiring teachers to rate students using a range of 1 (Never) to 5 (Always) for each item. The teachers were given 1 week to complete the scales for each child in their homerooms. All items were marked on a standard answer sheet. The answer sheets were hand scored by the investigator.

The social studies test consisted of 60 multiple-choice questions. Each teacher administered the test in approximately 45 minutes. As the teachers read each question orally to the students, they marked their answers on the test booklets. The tests were hand scored by the investigator.

During the week of pretesting, the investigator administered a sociogram to each of the four experimental classes. The purpose of the sociogram was to assist the investigator and experimental teachers in assigning students to Jigsaw groups.

Sociometric data from the sociogram were obtained from student responses to an eight-question social
relations instrument developed by the investigator (see Appendix J). The data from the questionnaire were tabulated using the Matrix for Sociometric Analysis (Fox, Luszki, & Schmuch, 1966). The Matrix contained as many rows and columns as there were students in each class. Positive choices were indicated by one and negative choices, or rejections, by negative one. Each row across contained the choices made by the student whose number appeared in the far left column. Each column contained the positive or negative choices received by the student whose number appeared at the top of the column. The total number of positive and negative entries was added in each column to determine choice patterns.

The investigator and experimental teachers reviewed the sociometric data, student grades, and pre-evaluation/test scores for each child in the four experimental classes. These criteria were used to select Jigsaw group leaders and place students into Jigsaw small groups. The experimental teachers, with the aid of the investigator, then assigned students to Jigsaw groups. Care was taken by the teachers and investigator to ensure a balance of abilities within each group.

Group leaders also were selected by the experimental teachers and the investigator. These students typically had higher than average grades and showed evidence of leadership among their peers.
The group leaders selected for the four experimental classes attended two Jigsaw workshops on January 13 and 16, 1984. The workshops, each 1 hour in length, were conducted by the investigator. The purposes of the workshops were: (a) to teach the students the Jigsaw Approach and (b) to inform the students of their specific duties as group leaders (see Table 2).

After completion of the Jigsaw workshops, students in the four experimental classes participated in 2 weeks of Jigsaw training (see Table 2). The Jigsaw groups formed for the training period remained intact during the 14-week experimental period. However, the members of each group were periodically subgrouped for specialized study in accordance with the guidelines for Jigsaw instruction. All students assigned as group leaders served in these positions during the training and experimental periods.

During the 2 weeks that the four experimental classes received training in the Jigsaw Approach, the students also were trained in the use of advance organizers (see Table 2). Packets were given to each group leader. The packets contained direction sheets, advance organizer materials, and question sheets relative to the experiment being conducted in each class. For the four classes, the preliminary training and experimental social studies instruction were provided using packets of advance
organizer materials based on the textbook chapters (Chapters 1-11) and the use of regular Jigsaw groups and subgroups (see Table 2).

During the study of the 11 chapters in the social studies text, each group leader periodically received advance organizer packets. The direction sheet for the group leaders was attached to the outside of the packet. This sheet gave detailed directions for group leaders to follow in presenting the assigned advance organizers to their fellow Jigsaw group members. The direction sheet also identified pages to be read by the group members.

The packet contained enough advance organizer copies for each Jigsaw member. Experimental Class A received summaries; Experimental Class B outlines; Experimental Class C key terms; and Experimental Class D questions.

Coded question sheets for each member of the leader's Jigsaw group also were contained in the packets. Students had been previously assigned one of the following codes: (a) star, (b) circle, (c) square, or (d) triangle (see Appendix F). All questions on the question sheets were marked with these codes. During the Jigsaw subgroup phase, the students were responsible for answering the questions marked with their assigned codes.

The number of packets developed for each chapter varied according to the length of the chapter being studied. Excluding the two packets used during the
training period, a total of 22 packets was provided for chapters 2-11. The investigator created all packets used in the study (see Table 3).

After the packets were distributed to the group leaders, they orally read to their members the advance organizer as the students read along silently using their copies. After the oral reading of the organizer, the group leader answered questions concerning the use of the material just read.

The group leader then instructed the Jigsaw members to silently read the textbook pages assigned on the direction sheet attached to the advance organizer packet. When the group leaders observed that all of the students in their groups had completed the assigned reading, they orally read the pages to the group members. The group leaders then distributed to each of the Jigsaw members the coded question sheets.

At the direction of the teacher, the students disbanded their regular Jigsaw groups and reorganized into subgroups. Jigsaw subgroups contained one or two members from each of the regular Jigsaw groups that had been assigned the same question sheet code. Jigsaw group leaders also served as subgroup leaders.

Each subgroup was responsible for answering the questions on the question sheet that were marked with their code. Generally, each subgroup was responsible for
<table>
<thead>
<tr>
<th>Packet</th>
<th>Textbook Pages</th>
<th>Chapters</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1-7 (Training Period)</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>8-11 (Training Period)</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>15-24</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>24-31</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>35-40</td>
<td>3</td>
</tr>
<tr>
<td>6</td>
<td>41-47</td>
<td>3</td>
</tr>
<tr>
<td>7</td>
<td>48-54</td>
<td>3</td>
</tr>
<tr>
<td>8</td>
<td>55-61</td>
<td>3</td>
</tr>
<tr>
<td>9</td>
<td>65-71</td>
<td>4</td>
</tr>
<tr>
<td>10</td>
<td>72-77</td>
<td>4</td>
</tr>
<tr>
<td>11</td>
<td>81-93</td>
<td>5</td>
</tr>
<tr>
<td>12</td>
<td>94-107</td>
<td>5</td>
</tr>
<tr>
<td>13</td>
<td>111-117</td>
<td>6</td>
</tr>
<tr>
<td>14</td>
<td>118-127</td>
<td>6</td>
</tr>
<tr>
<td>15</td>
<td>131-147</td>
<td>7</td>
</tr>
<tr>
<td>16</td>
<td>151-160</td>
<td>8</td>
</tr>
<tr>
<td>17</td>
<td>161-169</td>
<td>8</td>
</tr>
<tr>
<td>18</td>
<td>173-183</td>
<td>9</td>
</tr>
<tr>
<td>19</td>
<td>184-193</td>
<td>9</td>
</tr>
<tr>
<td>20</td>
<td>194-201</td>
<td>9</td>
</tr>
<tr>
<td>21</td>
<td>205-210</td>
<td>10</td>
</tr>
<tr>
<td>22</td>
<td>211-219</td>
<td>10</td>
</tr>
<tr>
<td>23</td>
<td>223-238</td>
<td>11</td>
</tr>
<tr>
<td>24</td>
<td>239-253</td>
<td>11</td>
</tr>
</tbody>
</table>
answering from two to four specific questions on each question sheet. After the students in the subgroups answered, to the teacher's and group leader's satisfaction, the questions assigned to them, the teacher instructed the students to reorganize into regular Jigsaw groups.

During a regular Jigsaw-group session, members were called upon by the group leader to answer orally their assigned questions. Members of the Jigsaw group were required to answer all questions by listening to group member responses and then writing the answers to each question on spaces provided on the question sheet.

The teachers then called the groups together as a whole and discussed the questions contained in the packet. After all activities for each packet were completed, the teachers collected the materials and issued new packets to each group leader.

Social studies instruction for the control class consisted of having the students read the textbook chapters silently and/or orally in accordance with the schedule for instructional activities located in Table 2. The control teacher then discussed each chapter with the students. No small-group methods were used with the control class during the experimental period. The control class received no advance organizers or question sheets.
The control class did make use of available audiovisual materials.

Only students who were initially enrolled in the third grade at the beginning of the experimental period and remained enrolled at the school during the 14-week period were included in the study. The scores of 118 students were included in the analysis of the data.

The Statistical Analysis of the Data

The analysis of the data was based upon a two-way analysis of variance for repeated measures. Pre- and post-evaluation/test mean scores on the Piers-Harris Children's Self-Concept Scale, Inferred Self-Concept Scale, and the social studies test were compared. The \( p < .05 \) level was considered significant on all statistical tests performed.
CHAPTER IV

Results

The purpose of this study was to determine whether significant differences existed in the self-concept and social studies achievement of third-grade students receiving instruction in Jigsaw cooperative small groups, using advance organizers, and third-grade students in a control class receiving conventional instruction. The experimental instruction in the study was provided in small groups that were based on the Jigsaw Small-Group Approach of Aronson et al. (1978). Four specific types of advance organizers (summaries, outlines, key terms, and questions) also were used in the experimental instructional program as a means of organizing content material. The results of this study for each hypothesis stated in Chapter I are discussed in this chapter.

Hypotheses Tested and Results

In order to obtain data to test the null hypotheses of this study, the Piers-Harris Children's Self-Concept Scale (Piers & Harris, 1969), the Inferred Self-Concept Scale (McDaniel, 1973), and a 60-item social studies test were administered using a pre- and post-design. The raw
scores of the scales and test were analyzed employing a two-way analysis of variance (ANOVA), using the pre-/post-evaluation self-concept scales and pre-/posttest social studies test raw scores as the dependent variables. The results of the analyses are presented in Tables 4-17 and Figures 1-3. The $p<.05$ statistical significance level was employed for evaluation of the null hypotheses.

The hypotheses presented in Chapter I were used in analyzing the data. The statistical findings of the study are provided. For precise understanding of the analysis, the hypotheses are restated before presenting the data used to evaluate them.

**Hypothesis I**: There will be no statistically significant interaction between the pre- and post-evaluation results of the Piers-Harris Children's Self-Concept Scale and the classes (four experimental classes and the control class).

**Hypothesis II**: There will be no statistically significant difference between the combined Piers-Harris Children's Self-Concept Scale mean scores of the experimental classes and the control class over pre- and post-evaluations for the dependent variable.

**Hypothesis III**: There will be no statistically significant difference between the combined pre- and post-evaluation Piers-Harris Children's Self-Concept Scale mean
scores over the combined experimental classes and the
control class for the dependent variable.

A two-way analysis of variance (ANOVA) was used to
test Null Hypotheses I, II, and III at $p < .05$ level of
significance. The ANOVA produced an $F$ ratio of 2.58 for
Null Hypothesis I with a probability of $p = .04$ with 4
and 112 degrees of freedom. Based on these results,
Null Hypothesis I was rejected. Because Hypothesis I
was rejected, it is not necessary to discuss Hypotheses
II and III. The results of this analysis are presented
in Table 4 and Figure 1.

In a post hoc investigation of the significant
interaction found in Hypothesis I, the simple main effects
revealed that no statistically significant differences
existed in the pre-evaluation mean scores of the Piers-
Harris Children's Self-Concept Scale for the five classes.
The $F$ ratio for the pre-evaluation mean scores was
$F (4, 112) = 1.03, p < .05$. The results of this analysis
are summarized in Table 5.

In a post hoc investigation of the significant
interaction found in Hypothesis I, the simple main effects
revealed that statistically significant differences
existed in the post-evaluation mean scores of the Piers-
Harris Children's Self-Concept Scale for the five classes.
The $F$ ratio for the post-evaluation mean scores was
Table 4

Analysis of Variance of Piers-Harris Self-Concept Scores for All Five Classes

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Blocks/Subjects</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group</td>
<td>162.79</td>
<td>4</td>
<td>40.70</td>
<td>.14</td>
<td></td>
</tr>
<tr>
<td>Error</td>
<td>31585.42</td>
<td>112</td>
<td>282.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Within Blocks/Subjects</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-Post</td>
<td>457.20</td>
<td>1</td>
<td>457.20</td>
<td>13.72</td>
<td>.001*</td>
</tr>
<tr>
<td>Group Pre-Post</td>
<td>343.57</td>
<td>4</td>
<td>85.89</td>
<td>2.58</td>
<td>.04*</td>
</tr>
<tr>
<td>Error</td>
<td>3731.88</td>
<td>112</td>
<td>33.32</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>36280.86</td>
<td>233</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Figure 1. Interaction of Piers-Harris Children’s Self-Concept Scale scores for all five classes.
Table 5

Simple Main Effects Summary of the Piers-Harris Children's Self-Concept Scale

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Piers-Harris Pre-Evaluation for Five Classes</td>
<td>137.54</td>
<td>4</td>
<td>34.39</td>
<td>1.03</td>
</tr>
<tr>
<td>Piers-Harris Post-Evaluation for Five Classes</td>
<td>367.93</td>
<td>4</td>
<td>92.00</td>
<td>2.76*</td>
</tr>
<tr>
<td>Evaluation @ Experimental Class A--Summaries With Jigsaw</td>
<td>142.49</td>
<td>1</td>
<td>142.49</td>
<td>4.28**</td>
</tr>
<tr>
<td>Evaluation @ Experimental Class B--Outlines With Jigsaw</td>
<td>368.30</td>
<td>1</td>
<td>368.30</td>
<td>11.05**</td>
</tr>
<tr>
<td>Evaluation @ Experimental Class C--Key Terms With Jigsaw</td>
<td>72.00</td>
<td>1</td>
<td>72.00</td>
<td>2.16</td>
</tr>
<tr>
<td>Evaluation @ Experimental Class D--Questions With Jigsaw</td>
<td>29.80</td>
<td>1</td>
<td>29.80</td>
<td>.89</td>
</tr>
<tr>
<td>Evaluation @ Control Class E--Conventional Instruction</td>
<td>187.63</td>
<td>1</td>
<td>187.63</td>
<td>5.63**</td>
</tr>
<tr>
<td>Totals</td>
<td>1305.69</td>
<td>13</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p < .05; F (4, 112) > 2.45.  **p < .05; F (1, 112) > 3.93.
The results of this analysis are summarized in Table 5.

Additional analysis, using Tukey's HSD test, was conducted to determine where significant differences existed among the post-evaluation mean scores of the Piers-Harris Children's Self-Concept Scale. This analysis revealed that the mean score difference between Experimental Class D, Questions With Jigsaw, and Experimental Class B, Outlines With Jigsaw, was statistically significant ($p < .05$). The mean score differences between: (a) Experimental Class D, Questions With Jigsaw, and Control Class E, Conventional Instruction, Experimental Class A, Summaries With Jigsaw, and Experimental Class C, Key Terms With Jigsaw; (b) Control Class E, Conventional Instruction, and Experimental Class A, Summaries With Jigsaw, Experimental Class C, Key Terms With Jigsaw, and Experimental Class B, Outlines With Jigsaw; and (c) Experimental Class A, Summaries With Jigsaw, Experimental Class C, Key Terms With Jigsaw, and Experimental Class B, Outlines With Jigsaw, were not statistically significant ($p > .05$). The results of this analysis are presented in Table 6.

An analysis of the simple main effects was conducted to determine if significant differences existed in the Piers-Harris Children's Self-Concept Scale pre- to post-evaluation mean scores for the five classes. This
Table 6

Differences Between the Piers-Harris Children's Self-Concept Scale Post-Evaluation Mean Scores for the Five Classes

<table>
<thead>
<tr>
<th>Class D, Questions With Jigsaw</th>
<th>Control Class E, Conventional Instruction</th>
<th>Class A, Summaries With Jigsaw</th>
<th>Class C, Key Terms With Jigsaw</th>
<th>Class B, Outlines With Jigsaw</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\bar{X} = 57.04$</td>
<td></td>
<td>$\bar{X} = 60.00$</td>
<td>$\bar{X} = 60.68$</td>
<td>$\bar{X} = 62.54$</td>
</tr>
</tbody>
</table>

| 2.82                          | 2.96                                      | 3.64                          | 5.50*                         |

Control Class E, Conventional Instruction
$\bar{X} = 59.86$

Experimental Class A, Summaries With Jigsaw
$\bar{X} = 60.00$

Experimental Class C, Key Terms With Jigsaw
$\bar{X} = 60.68$

Experimental Class B, Outlines With Jigsaw
$\bar{X} = 62.54$

$.68$                          | $.82$                                      | .14                           | .14                           |

*.E_<.05. HSD = 4.66.
analysis revealed that three classes showed statistically significant pre-to post-evaluation differences.

Experimental Class A, Summaries With Jigsaw, obtained an $F$ ratio of $F (1, 112) = 4.28, p<.05$. The results of this analysis revealed that the use of summaries as advance organizers during Jigsaw cooperative small-group instruction was effective in improving the self-concept of students in this study.

Experimental Class B, Outlines With Jigsaw, obtained an $F$ ratio of $F (1, 112) = 11.05, p<.05$. The results of this analysis revealed that the use of outlines as advance organizers during Jigsaw cooperative small-group instruction was effective in improving the self-concept of students in the study.

Control Class E, Conventional Instruction, obtained an $F$ ratio of $F (1, 112) = 5.63, p<.05$. The results of this analysis revealed that the use of conventional instruction was effective in improving the self-concept of students in the study. A summary of the results of these analyses is presented in Table 5 and Table 7.

**Hypothesis IV:** There will be no statistically significant interaction between the pre- and post-evaluation results of the Inferred Self-Concept Scale and the classes (four experimental classes and the control class).

**Hypothesis V:** There will be no statistically significant difference between the combined Inferred
Table 7

Summary of Piers-Harris Children's Self-Concept Scale Pre- to Post-Evaluation Mean Scores

<table>
<thead>
<tr>
<th>Class</th>
<th>Pre-Evaluation</th>
<th>Post-Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>X</td>
<td>SD</td>
</tr>
<tr>
<td>Experimental Class A, Summaries With Jigsaw</td>
<td>56.48</td>
<td>11.56</td>
</tr>
<tr>
<td>Experimental Class B, Outlines With Jigsaw</td>
<td>57.00</td>
<td>12.58</td>
</tr>
<tr>
<td>Experimental Class C, Key Terms With Jigsaw</td>
<td>58.28</td>
<td>11.70</td>
</tr>
<tr>
<td>Experimental Class D, Questions With Jigsaw</td>
<td>58.65</td>
<td>13.56</td>
</tr>
<tr>
<td>Control Class E, Conventional Instruction</td>
<td>55.73</td>
<td>12.42</td>
</tr>
</tbody>
</table>

*p < .05; F (1, 112) > 3.93.
Self-Concept Scale mean scores of the experimental classes and the control class over pre- and post-evaluations for the dependent variable.

**Hypothesis VI:** There will be no statistically significant difference between the combined pre- and post-evaluation Inferred Self-Concept Scale mean scores over the combined experimental classes and the control class for the dependent variable.

A two-way analysis of variance (ANOVA) was used to test Null Hypotheses IV, V, and VI at the $p < .05$ level of significance. The ANOVA produced an $F$ ratio of 22.04 for Null Hypothesis IV with a probability of $p < .001$ with 4 and 113 degrees of freedom. Based on these results, Null Hypothesis IV was rejected. Because Hypothesis IV was rejected, it is not necessary to discuss Hypotheses V and VI. The results of this analysis are presented in Table 8 and Figure 2.

In a post hoc investigation of the significant interaction found in Hypothesis IV, the simple main effects revealed that statistically significant differences existed in the pre-evaluation mean scores of the Inferred Self-Concept Scale for the five classes. The $F$ ratio for the pre-evaluation mean scores was $F (4, 113) = 63.94$, $p < .05$. The results of this analysis are summarized in Table 9.
Table 8
Analysis of Variance of Inferred Self-Concept Scores for All Five Classes

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Between Blocks/Subjects</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group</td>
<td>8639.71</td>
<td>4</td>
<td>2159.93</td>
<td>9.28</td>
<td>.001*</td>
</tr>
<tr>
<td>Error</td>
<td>26305.41</td>
<td>113</td>
<td>232.79</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Within Blocks/Subjects</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-Post</td>
<td>29.52</td>
<td>1</td>
<td>29.52</td>
<td>1.14</td>
<td>.290</td>
</tr>
<tr>
<td>Group Pre-Post</td>
<td>2293.92</td>
<td>4</td>
<td>573.48</td>
<td>22.04</td>
<td>.001*</td>
</tr>
<tr>
<td>Error</td>
<td>2939.81</td>
<td>113</td>
<td>26.02</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>40208.37</td>
<td>235</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p<.05.
Figure 2. Interaction of Inferred Self-Concept Scale scores for all five classes.
Table 9

Simple Main Effects Summary of the Inferred Self-Concept Scale

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inferred Pre-Evaluation for Five Classes</td>
<td>6653.20</td>
<td>4</td>
<td>1663.30</td>
<td>63.94*</td>
</tr>
<tr>
<td>Inferred Post-Evaluation for Five Classes</td>
<td>4214.00</td>
<td>4</td>
<td>1053.50</td>
<td>40.50*</td>
</tr>
<tr>
<td>Evaluation @ Experimental Class A--Summaries With Jigsaw</td>
<td>86.33</td>
<td>1</td>
<td>86.33</td>
<td>3.31</td>
</tr>
<tr>
<td>Evaluation @ Experimental Class B--Outlines With Jigsaw</td>
<td>113.82</td>
<td>1</td>
<td>113.82</td>
<td>4.37**</td>
</tr>
<tr>
<td>Evaluation @ Experimental Class C--Key Terms With Jigsaw</td>
<td>19.22</td>
<td>1</td>
<td>19.22</td>
<td>.73</td>
</tr>
<tr>
<td>Evaluation @ Experimental Class D--Questions With Jigsaw</td>
<td>915.03</td>
<td>1</td>
<td>915.03</td>
<td>35.17**</td>
</tr>
<tr>
<td>Evaluation @ Control Class E, Conventional Instruction</td>
<td>1140.81</td>
<td>1</td>
<td>1140.81</td>
<td>43.85**</td>
</tr>
<tr>
<td>Totals</td>
<td>13142.41</td>
<td>13</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p<.05; F (4, 113) >2.45.  **p<.05; F (1, 113) >3.93.
Further analysis was conducted, using Tukey's HSD test, to determine where significant differences existed in the pre-evaluation mean scores of the Inferred Self-Concept Scale. This analysis revealed that the mean score differences between (a) Experimental Class D, Questions With Jigsaw, and the four other classes, and (b) Experimental Class B, Outlines With Jigsaw, and Control Class E, Conventional Instruction, Experimental Class A, Summaries With Jigsaw, and Experimental Class C, Key Terms With Jigsaw, were statistically significant ($p < .05$). The mean score differences between Control Class E, Conventional Instruction, Experimental Class A, Summaries With Jigsaw, and Experimental Class C, Key Terms With Jigsaw, were not statistically significant ($p > .05$). The results of this analysis are summarized in Table 10.

In a post hoc investigation of the significant interaction found in Hypothesis IV, the simple main effects revealed that statistically significant differences existed in the post-evaluation mean scores of the Inferred Self-Concept Scale for the five classes. The $F$ ratio for the post-evaluation mean scores was $F (4, 113) = 40.50, p < .05$. A summary of the results of this analysis is presented in Table 9.

Additional analysis, using Tukey's HSD test, was conducted to determine where significant differences existed between the post-evaluation mean scores of the Inferred
Table 10

Differences Between the Inferred Self-Concept Scale Pre-Evaluation Mean Scores for the Five Classes

<table>
<thead>
<tr>
<th>Experimental Class D, Questions With Jigsaw</th>
<th>Experimental Class B, Outlines With Jigsaw</th>
<th>Control Class E, Conventional Instruction</th>
<th>Experimental Class A, Summaries With Jigsaw</th>
<th>Experimental Class C, Key Terms With Jigsaw</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\bar{X} = 110.43$</td>
<td>$\bar{X} = 122.96$</td>
<td>$\bar{X} = 127.26$</td>
<td>$\bar{X} = 130.09$</td>
<td>$\bar{X} = 131.28$</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental Class D, Questions With Jigsaw</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\bar{X} = 110.43$</td>
<td>$12.53^*$</td>
<td>$16.83^*$</td>
<td>$19.66^*$</td>
<td>$20.85^*$</td>
</tr>
<tr>
<td>Experimental Class B, Outlines With Jigsaw</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\bar{X} = 122.96$</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>$4.30^*$</td>
<td>$7.13^*$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control Class E, Conventional Instruction</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\bar{X} = 127.26$</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>$2.83^*$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental Class A, Summaries With Jigsaw</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\bar{X} = 130.09$</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$1.19$</td>
</tr>
<tr>
<td>Experimental Class C, Key Terms With Jigsaw</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\bar{X} = 131.28$</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p < .05.  HSD = 4.09.
Self-Concept Scale. This analysis revealed that the mean score differences between: (a) Control Class E, Conventional Instruction, and Experimental Class B, Outlines With Jigsaw, Experimental Class C, Key Terms With Jigsaw, and Experimental Class A, Summaries With Jigsaw; (b) Experimental Class D, Questions With Jigsaw, and Experimental Class B, Outlines With Jigsaw, Experimental Class C, Key Terms With Jigsaw, and Experimental Class A, Summaries With Jigsaw; and (c) Experimental Class B, Outlines With Jigsaw, and Experimental Class A, Summaries With Jigsaw, were statistically significant ($p<.05$). The mean score differences between: (d) Control Class E, Conventional Instruction, and Experimental Class D, Questions With Jigsaw; (e) Experimental Class B, Outlines With Jigsaw, and Experimental Class C, Key Terms With Jigsaw; and (f) Experimental Class C, Key Terms With Jigsaw, and Experimental Class A, Summaries With Jigsaw, were not statistically significant ($p<.05$). The results of this analysis are summarized in Table 11.

An analysis of the simple main effects was conducted to determine if significant differences existed in the Inferred Self-Concept Scale pre- to post-evaluation mean scores for each of the five classes. This analysis revealed that three classes showed statistically significant pre- to post-evaluation differences.
<table>
<thead>
<tr>
<th>Control Class E, Conventional Instruction</th>
<th>Experimental Class D, Questions With Jigsaw</th>
<th>Experimental Class B, Outlines With Jigsaw</th>
<th>Experimental Class C, Key Terms With Jigsaw</th>
<th>Experimental Class A, Summaries With Jigsaw</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \bar{x} = 117.30 )</td>
<td>( \bar{x} = 119.35 )</td>
<td>( \bar{x} = 126.04 )</td>
<td>( \bar{x} = 130.04 )</td>
<td>( \bar{x} = 132.83 )</td>
</tr>
</tbody>
</table>

Control Class E, Conventional Instruction
\( \bar{x} = 117.30 \)

Experimental Class D, Questions With Jigsaw
\( \bar{x} = 119.35 \)

Experimental Class B, Outlines With Jigsaw
\( \bar{x} = 126.04 \)

Experimental Class C, Key Terms With Jigsaw
\( \bar{x} = 130.04 \)

Experimental Class A, Summaries With Jigsaw
\( \bar{x} = 132.83 \)

\*p<.05. HSD = 4.09.
Experimental Class B, Outlines With Jigsaw, obtained an $F$ ratio of $F(1, 113) = 4.37, p < .05$. The results of this analysis revealed that the use of outlines as advance organizers during Jigsaw cooperative small-group instruction was effective in improving the perceived self-concept of students in the study.

Experimental Class D, Questions With Jigsaw, obtained an $F$ ratio of $F(1, 113) = 35.17, p < .05$. The results of this analysis revealed that the use of questions as advance organizers during Jigsaw cooperative small-group instruction was effective in improving the perceived self-concept of students in the study.

Control Class E, Conventional Instruction, obtained an $F$ ratio of $F(1, 113) = 43.85, p < .05$. The results of this analysis revealed that the use of conventional classroom instruction was not effective in improving the perceived self-concept of students in the study. A summary of the results of these analyses is presented in Table 9 and Table 12.

**Hypothesis VII**: There will be no statistically significant interaction between the pre- and posttest results of the 60-item social studies test and the classes (four experimental classes and the control class).

**Hypothesis VIII**: There will be no statistically significant difference between the combined 60-item social studies test mean scores of the experimental classes and
<table>
<thead>
<tr>
<th>Class</th>
<th>Pre-Evaluation</th>
<th>Post-Evaluation</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>X</td>
<td>SD</td>
<td>X</td>
</tr>
<tr>
<td>Experimental Class A, Summaries With Jigsaw</td>
<td>130.09</td>
<td>10.54</td>
<td>132.83</td>
</tr>
<tr>
<td>Experimental Class B, Outlines With Jigsaw</td>
<td>122.96</td>
<td>11.55</td>
<td>126.04</td>
</tr>
<tr>
<td>Experimental Class C, Key Terms With Jigsaw</td>
<td>131.28</td>
<td>11.97</td>
<td>130.04</td>
</tr>
<tr>
<td>Experimental Class D, Questions With Jigsaw</td>
<td>110.43</td>
<td>14.91</td>
<td>119.35</td>
</tr>
<tr>
<td>Control Class E, Conventional Instruction</td>
<td>127.26</td>
<td>10.59</td>
<td>117.30</td>
</tr>
</tbody>
</table>

*p < .05; F (1, 113) > 3.93.
the control class over pre- and posttests for the dependent variable.

**Hypothesis IX**: There will be no statistically significant difference between the combined pre- and posttest 60-item social studies test mean scores over the combined experimental classes and the control class for the dependent variable.

A two-way analysis of variance (ANOVA) was used to test Null Hypotheses VII, VIII, and IX. The ANOVA produced an $F$ ratio of 3.80 for Null Hypothesis VII with a probability of $p = .006$ with 4 and 109 degrees of freedom. Based on these results, Null Hypothesis VII was rejected. Because Hypothesis VII was rejected, it is not necessary to discuss Hypotheses VIII and IX. The results of this analysis are presented in Table 13 and Figure 3.

In a post hoc investigation of the significant interaction found in Hypothesis VII, the results of the simple main effects revealed that statistically significant differences existed in the pretest mean scores of the 60-item social studies test for the five classes. The $F$ ratio for the pretest mean scores was $F (4, 109) = 7.24, p < .05$. The results of this analysis are summarized in Table 14.

Further analysis was conducted, using Tukey's HSD test, to determine where significant differences existed in the pretest mean scores of the 60-item social studies
Table 13

Analysis of Variance of Social Studies Test Scores for All Five Classes

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Between Blocks/Subjects</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group</td>
<td>1024.80</td>
<td>4</td>
<td>256.20</td>
<td>1.85</td>
<td>.12</td>
</tr>
<tr>
<td>Error</td>
<td>15066.19</td>
<td>109</td>
<td>138.22</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Within Blocks/Subjects</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-Post</td>
<td>9690.59</td>
<td>1</td>
<td>9690.59</td>
<td>508.69</td>
<td>.001*</td>
</tr>
<tr>
<td>Group Pre/Post</td>
<td>289.38</td>
<td>4</td>
<td>72.35</td>
<td>3.80</td>
<td>.006*</td>
</tr>
<tr>
<td>Error</td>
<td>2076.46</td>
<td>109</td>
<td>19.05</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>28147.42</td>
<td>227</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*<p><.05.
Figure 3. Interaction of social studies test scores for all five classes.
### Table 14

**Simple Main Effects Summary of the 60-Item Social Studies Test**

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Studies Test Pretest for Five Classes</td>
<td>551.62</td>
<td>4</td>
<td>137.90</td>
<td>7.24*</td>
</tr>
<tr>
<td>Social Studies Test Posttest for Five Classes</td>
<td>627.81</td>
<td>4</td>
<td>157.00</td>
<td>8.24*</td>
</tr>
<tr>
<td>Evaluation @ Experimental Class A-- Summaries With Jigsaw</td>
<td>3089.27</td>
<td>1</td>
<td>3089.27</td>
<td>162.17**</td>
</tr>
<tr>
<td>Evaluation @ Experimental Class B-- Outlines With Jigsaw</td>
<td>1631.25</td>
<td>1</td>
<td>1631.25</td>
<td>85.63**</td>
</tr>
<tr>
<td>Evaluation @ Experimental Class C-- Key Terms With Jigsaw</td>
<td>1122.10</td>
<td>1</td>
<td>1122.10</td>
<td>58.90**</td>
</tr>
<tr>
<td>Evaluation @ Experimental Class D-- Questions With Jigsaw</td>
<td>1943.50</td>
<td>1</td>
<td>1943.50</td>
<td>102.02**</td>
</tr>
<tr>
<td>Evaluation @ Control Class E, Conventional Instruction</td>
<td>2144.14</td>
<td>1</td>
<td>2144.14</td>
<td>112.55**</td>
</tr>
<tr>
<td>Totals</td>
<td>11109.69</td>
<td>13</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p < .05; F (4, 109) > 2.45.  **p < .05; F (1, 109) > 3.93.*
test. This analysis revealed that the mean score differences between: (a) Experimental Class B, Outlines With Jigsaw, and Control Class E, Conventional Instruction, Experimental Class D, Questions With Jigsaw, and Experimental Class C, Key Terms With Jigsaw; and (b) Experimental Class A, Summaries With Jigsaw, and Experimental Class D, Questions With Jigsaw, and Experimental Class C, Key Terms With Jigsaw, were statistically significant ($p < .05$). The mean score differences between: (c) Experimental Class B, Outlines With Jigsaw, and Experimental Class A, Summaries With Jigsaw; (d) Experimental Class A, Summaries With Jigsaw, and Control Class E, Conventional Instruction; and (e) Control Class E, Conventional Instruction, and Experimental Class D, Questions With Jigsaw, and Experimental Class C, Key Terms With Jigsaw, were not statistically significant ($p > .05$). The results of this analysis are summarized in Table 15.

In a post hoc investigation of the significant interaction found in Hypothesis VII, the results of the simple main effects revealed that statistically significant differences existed in the posttest mean scores of the 60-item social studies test for the five classes. The $F$ ratio for the posttest mean scores was $F(4, 109) = 8.24$, $p < .05$. The results of this analysis are presented in Table 14.
Table 15

Differences Between the Social Studies Pretest Mean Scores for the Five Classes

<table>
<thead>
<tr>
<th></th>
<th>Experimental Class B, Outlines With Jigsaw</th>
<th>Experimental Class A, Summaries With Jigsaw</th>
<th>Control Class E, Conventional Instruction</th>
<th>Experimental Class D, Questions With Jigsaw</th>
<th>Experimental Class C, Key Terms With Jigsaw</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Score (X)</td>
<td>29.00</td>
<td>30.70</td>
<td>33.52</td>
<td>34.30</td>
<td>34.54</td>
</tr>
<tr>
<td>Difference</td>
<td>1.70</td>
<td>4.52*</td>
<td>5.30*</td>
<td>5.54*</td>
<td></td>
</tr>
</tbody>
</table>

\[ \text{HSD} = 3.54. \]

\[ \alpha < .05. \]
Additional analysis, using Tukey's HSD test, was conducted to determine where significant differences existed between the posttest mean scores of the 60-item social studies test. This analysis revealed that the mean score differences between: (a) Experimental Class B, Outlines With Jigsaw, and Experimental Class A, Summaries With Jigsaw, Experimental Class D, Questions With Jigsaw, and Control Class E, Conventional Instruction; and (b) Experimental Class C, Key Terms With Jigsaw, and Control Class E, Conventional Instruction, were statistically significant ($p<.05$). The mean score differences between: (c) Experimental Class B, Outlines With Jigsaw, and Experimental Class C, Key Terms With Jigsaw; (d) Experimental Class C, Key Terms With Jigsaw, and Experimental Class A, Summaries With Jigsaw, and Experimental Class D, Questions With Jigsaw; and (e) Experimental Class A, Summaries With Jigsaw, and Experimental Class D, Questions With Jigsaw, and Control Class E, Conventional Instruction, were not statistically significant ($p<.05$). The results of this analysis are presented in Table 16.

An analysis of the simple main effects was conducted to determine if significant differences existed in the 60-item social studies test pre- to posttest mean scores for each of the five classes. This analysis revealed that all five classes showed statistically significant pre- to posttest differences.
Table 16

Differences Between the Social Studies Posttest Mean Scores for the Five Classes

<table>
<thead>
<tr>
<th>Experimental Class B, Outlines With Jigsaw</th>
<th>Experimental Class C, Key Terms With Jigsaw</th>
<th>Experimental Class A, Summaries With Jigsaw</th>
<th>Experimental Class D, Questions With Jigsaw</th>
<th>Control Class E, Conventional Instruction</th>
</tr>
</thead>
<tbody>
<tr>
<td>$X = 40.91$</td>
<td>$X = 44.21$</td>
<td>$X = 47.09$</td>
<td>$X = 47.30$</td>
<td>$X = 47.81$</td>
</tr>
</tbody>
</table>

Experimental Class B, Outlines With Jigsaw

| X = 40.91                              |

Experimental Class C, Key Terms With Jigsaw

| X = 44.21                              |

Experimental Class A, Summaries With Jigsaw

| X = 47.09                              |

Experimental Class D, Questions With Jigsaw

| X = 47.30                              |

Control Class E, Conventional Instruction

| X = 47.81                              |

$p < .05$.  HSD = 3.54.
Experimental Class A, Summaries With Jigsaw, obtained an $F$ ratio of $F (1, 109) = 162.16, p < .05$. The results of this analysis revealed that the use of summaries as advance organizers during Jigsaw cooperative small-group instruction was effective in improving the social studies achievement of students in the study. (See Table 17.)

Experimental Class B, Outlines With Jigsaw, obtained an $F$ ratio of $F (1, 109) = 85.63, p < .05$. The results of this analysis revealed that the use of outlines as advance organizers during Jigsaw cooperative small-group instruction was effective in improving the social studies achievement of students in the study. (See Table 17.)

Experimental Class C, Key Terms With Jigsaw, obtained an $F$ ratio of $F (1, 109) = 58.90, p < .05$. The results of this analysis revealed that the use of key terms as advance organizers during Jigsaw cooperative small-group instruction was effective in improving the social studies achievement of students in the study. (See Table 17.)

Experimental Class D, Questions With Jigsaw, obtained an $F$ ratio of $F (1, 109) = 102.02, p < .05$. The results of this analysis revealed that the use of questions as advance organizers during Jigsaw cooperative small-group instruction was effective in improving the social studies achievement of students in the study. (See Table 17.)

Control Class E, Conventional Instruction, obtained an $F$ ratio of $F (1, 109) = 112.55, p < .05$. The results
Table 17

Summary of the 60-Item Social Studies Pre- to Posttest Mean Scores

<table>
<thead>
<tr>
<th>Class</th>
<th>Pretest</th>
<th>Posttest</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>X</td>
<td>SD</td>
<td>X</td>
</tr>
<tr>
<td>Experimental Class A, Summaries With Jigsaw</td>
<td>30.70</td>
<td>9.80</td>
<td>47.09</td>
</tr>
<tr>
<td>Experimental Class B, Outlines With Jigsaw</td>
<td>29.00</td>
<td>8.91</td>
<td>40.91</td>
</tr>
<tr>
<td>Experimental Class C, Key Terms With Jigsaw</td>
<td>34.54</td>
<td>8.62</td>
<td>44.21</td>
</tr>
<tr>
<td>Experimental Class D, Questions With Jigsaw</td>
<td>34.30</td>
<td>9.06</td>
<td>47.30</td>
</tr>
<tr>
<td>Control Class E, Conventional Instruction</td>
<td>33.52</td>
<td>9.92</td>
<td>47.81</td>
</tr>
</tbody>
</table>

*p<.05; F (1, 109) >3.93.
of this analysis revealed that the use of conventional instruction was effective in improving the social studies achievement of students in the study. A summary of these analyses is presented in Table 14 and Table 17.
CHAPTER V

Summary, Conclusions, and Recommendations

Summary

The purpose of this study was to determine whether significant differences existed in the self-concept and social studies achievement of third-grade students receiving instruction in Jigsaw cooperative small groups, using advance organizers, and third-grade students in a control class receiving conventional instruction. The experimental instruction in the study was provided for small groups based on the Jigsaw Small-Group Approach of Aronson et al. (1978). Four specific types of advance organizers (summaries, outlines, key terms, and questions) also were used in the experimental instructional program as a means of organizing content material.

The problem of the study was to investigate the effects of cooperative small-group instruction and the use of advance organizers on the self-concept and social studies achievement of third-grade students. This study evaluated the methodology of organizing content into summaries, outlines, key terms, and questions and the
effects of their presentation on student learning during cooperative small-group instruction.

The population of this study consisted of 118 third-grade students attending Thompson Elementary School in Alabaster, Alabama. The students were members of heterogeneously-grouped homeroom classes. In order to obtain data to test the null hypotheses of this study, the students were administered the Piers-Harris Children's Self-Concept Scale (Piers & Harris, 1969), the Inferred Self-Concept Scale (McDaniel, 1973), and a 60-item social studies test using a pre- and post-design. The presence or absence of any significant differences, and/or interactions was assessed by the comparison of the pre- and post-evaluation/test results.

The raw scores of the self-concept scales and the social studies test were analyzed using a two-way analysis of variance (ANOVA). Analyses of the simple main effects and Tukey's HSD test results also were conducted by the researcher to determine if significant differences existed between pre- and post-evaluation/test mean scores. An alpha level of $p < .05$ was employed as the criterion for statistical significance.

The results of the analyses revealed the following:

1. A two-way analysis of variance (ANOVA) to test Null Hypotheses I, II, and III revealed that a statistically significant interaction occurred between the
pre- and/or post-evaluation mean scores of the Piers-Harris Children's Self-Concept Scale and the five classes.

2. In a post hoc investigation of the significant interaction found in Hypothesis I, the simple main effects revealed that no statistically significant differences existed in the Piers-Harris Children's Self-Concept Scale pre-evaluation mean scores for the five classes.

3. In a post hoc investigation of the significant interaction found in Hypothesis I, the simple main effects revealed that statistically significant differences existed in the Piers-Harris Children's Self-Concept Scale post-evaluation mean scores for the five classes.

4. Tukey's HSD test was used to analyze the Piers-Harris Children's Self-Concept Scale post-evaluation mean scores. The results revealed that the mean score differences were: (a) statistically significant between Experimental Class D, Questions With Jigsaw, and Experimental Class B, Outlines With Jigsaw; (b) not statistically significant between Experimental Class D, Questions With Jigsaw, and Control Class E, Conventional Instruction, Experimental Class A, Summaries With Jigsaw, and Experimental Class C, Key Terms With Jigsaw; and (c) not statistically significant between Control Class E, Conventional Instruction, and Experimental Class A, Summaries With Jigsaw, Experimental Class C, Key Terms With Jigsaw, and Experimental Class B, Outlines With Jigsaw.
5. An analysis of the simple main effects revealed that statistically significant differences existed in the Piers-Harris Children's Self-Concept Scale pre- to post-evaluation mean scores for Experimental Class A, Summaries With Jigsaw, Experimental Class B, Outlines With Jigsaw, and Control Class E, Conventional Instruction.

6. A two-way analysis of variance (ANOVA) to test Null Hypotheses IV, V, and VI revealed that a statistically significant interaction occurred between the pre- and post-evaluation mean scores of the Inferred Self-Concept Scale and the five classes.

7. In a post hoc investigation of the significant interaction found in Hypothesis IV, the simple main effects revealed that statistically significant differences existed in the Inferred Self-Concept Scale pre-evaluation mean scores for the five classes.

8. Tukey's HSD test was used to analyze the Inferred Self-Concept Scale pre-evaluation mean scores. The results revealed that the mean score differences were:
(a) statistically significant between Experimental Class D, Questions With Jigsaw, and the four other classes;
(b) statistically significant between Experimental Class B, Outlines With Jigsaw, and Control Class E, Conventional Instruction, Experimental Class A, Summaries With Jigsaw, and Experimental Class C, Key Terms With Jigsaw; and
(c) not statistically significant between Control Class E,
9. In a post hoc investigation of the significant interaction found in Hypothesis IV, the simple main effects revealed that statistically significant differences existed in the Inferred Self-Concept Scale post-evaluation mean scores for the five classes.

10. Tukey's HSD test was used to analyze the Inferred Self-Concept Scale post-evaluation mean scores. The results revealed that the mean score differences were: (a) statistically significant between Control Class E, Conventional Instruction, Experimental Class B, Outlines With Jigsaw, Experimental Class C, Key Terms With Jigsaw, and Experimental Class A, Summaries With Jigsaw; (b) statistically significant between Experimental Class D, Questions With Jigsaw, and Experimental Class B, Outlines With Jigsaw, Experimental Class C, Key Terms With Jigsaw, and Experimental Class A, Summaries With Jigsaw; (c) statistically significant between Experimental Class B, Outlines With Jigsaw, and Experimental Class A, Summaries With Jigsaw; (d) not statistically significant between Control Class E, Conventional Instruction, and Experimental Class D, Questions With Jigsaw; (e) not statistically significant between Experimental Class B, Outlines With Jigsaw, and Experimental Class C, Key Terms With Jigsaw.
With Jigsaw; and (f) not statistically significant between Experimental Class C, Key Terms With Jigsaw, and Experimental Class A, Summaries With Jigsaw.

11. An analysis of the simple main effects revealed that statistically significant differences existed in the Inferred Self-Concept Scale pre- to post-evaluation mean scores for Experimental Class B, Outlines With Jigsaw, Experimental Class D, Questions With Jigsaw, and Control Class E, Conventional Instruction.

12. A two-way analysis of variance (ANOVA) to test Null Hypotheses VII, VIII, and IX revealed that a statistically significant interaction occurred between the pre- and/or posttest mean scores of the 60-item social studies test and the five classes.

13. In a post hoc investigation of the significant interaction found in Hypothesis VII, the simple main effects revealed that statistically significant differences existed in the 60-item social studies test/pretest mean scores for the five classes.

14. Tukey's HSD test was used to analyze the 60-item social studies pretest mean scores. The results revealed that the mean score differences were: (a) statistically significant between Experimental Class B, Outlines With Jigsaw, and Control Class E, Conventional Instruction, Experimental Class D, Questions With Jigsaw, and Experimental Class C, Key Terms With Jigsaw; (b) statistically
significant between Experimental Class A, Summaries With Jigsaw, and Experimental Class D, Questions With Jigsaw, and Experimental Class C, Key Terms With Jigsaw; (c) not statistically significant between Experimental Class B, Outlines With Jigsaw, and Experimental Class A, Summaries With Jigsaw; (d) not statistically significant between Experimental Class A, Summaries With Jigsaw, and Control Class E, Conventional Instruction; and (e) not statistically significant between Control Class E, Conventional Instruction, Experimental Class D, Questions with Jigsaw, and Experimental Class C, Key Terms With Jigsaw.

15. In a post hoc investigation of the significant interaction found in Hypothesis VII, the simple main effects revealed that statistically significant differences existed in the 60-item social studies test posttest mean scores for the five classes.

16. Tukey's HSD test was used to analyze the 60-item social studies posttest mean scores. The results revealed that the mean score differences were: (a) statistically significant between Experimental Class B, Outlines With Jigsaw, and Experimental Class A, Summaries With Jigsaw, Experimental Class D, Questions With Jigsaw, and Control Class E, Conventional Instruction; (b) statistically significant between Experimental Class C, Key Terms With Jigsaw, and Control Class E, Conventional Instruction; (c) not statistically significant between Experimental
Class B, Outlines With Jigsaw, and Experimental Class C, Key Terms With Jigsaw; (d) not statistically significant between Experimental Class C, Key Terms With Jigsaw, Experimental Class A, Summaries With Jigsaw, and Experimental Class D, Questions With Jigsaw; and (e) not statistically significant between Experimental Class A, Summaries With Jigsaw, Experimental Class D, Questions With Jigsaw, and Control Class E, Conventional Instruction.

17. An analysis of the simple main effects revealed that statistically significant differences existed in the 60-item social studies test pre- to posttest mean scores for all five classes.

Conclusions

This study has produced evidence supporting the following conclusions:

1. A statistically significant interaction between the pre- and post-evaluation results of the Piers-Harris Children's Self-Concept Scale and the classes (four experimental classes and the control class) was detected in the analyses addressing Null Hypothesis I. It is, therefore, concluded that the differences in scores between the four experimental classes and the control class were dependent upon the treatments being used.
An analysis of the data regarding Null Hypothesis I has led the researcher to conclude the following:

a. The use of summaries by Experimental Class A and outlines by Experimental Class B as advance organizers during Jigsaw cooperative small-group instruction was effective in improving the self-concept of students who participated in the study.

b. The use of conventional social studies instruction by Control Class E was effective in improving the self-concept of students who participated in the study.

c. The use of key terms by Experimental Class C and questions by Experimental Class D as advance organizers during Jigsaw cooperative small-group instruction was not effective in improving the self-concept of students who participated in the study.

2. A statistically significant interaction between the pre- and post-evaluation results of the Inferred Self-Concept Scale and the classes (four experimental classes and the control class) was detected in the analyses addressing Null Hypothesis IV. It is, therefore, concluded that the differences in scores between the four experimental classes and the control class were dependent upon the treatment being used.

An analysis of the data regarding Null Hypothesis IV has led the researcher to conclude the following:
a. The use of outlines by Experimental Class B and questions by Experimental Class D as advance organizers during Jigsaw cooperative small-group instruction was effective in improving the teacher-perceived (inferred) self-concept of students who participated in the study.

b. The use of summaries by Experimental Class A and key terms by Experimental Class C as advance organizers during Jigsaw cooperative small-group instruction was not effective in improving the teacher-perceived (inferred) self-concept of students who participated in the study.

c. The use of conventional classroom social studies instruction by Control Class E was not effective in improving the teacher-perceived (inferred) self-concept of students who participated in the study.

3. A statistically significant interaction between the pre- and posttest results of the 60-item social studies test and the classes (four experimental classes and the control class) was detected in the analyses addressing Null Hypothesis VII. It is, therefore, concluded that the differences in scores between the four experimental classes and the conventional class were dependent upon the treatment being used.
An analysis of the data regarding Null Hypothesis VII has led the researcher to conclude the following:

a. The use of summaries by Experimental Class A, outlines by Experimental Class B, key terms by Experimental Class C, and questions by Experimental Class D as advance organizers during Jigsaw cooperative small-group instruction was effective in improving the social studies achievement of students who participated in the study.

b. The use of conventional social studies instruction by Control Class E also was effective in improving the social studies achievement of students who participated in the study.

The following uncontrolled factors may have had an effect on the results of this study:

1. The population for this study was limited to one large, middle-class elementary school of the Shelby County School System in Alabama.

2. The treatment period was limited to 14 weeks or 70 instructional hours.

3. The subjects for this study were limited to third-grade students at Thompson Elementary School in Alabaster, Alabama.

4. The material for social studies instruction was not randomly selected.
5. The subjects in the experimental and control classes were not randomly assigned; therefore, the classes were not equated.

6. Each of the classes was taught by a different teacher. No attempt was made to analyze the data in regard to teacher characteristics that might have affected self-concept and social studies achievement.

Recommendations for Further Study

The reader is urged to build upon the present study. The results of this investigation, both those that were statistically significant and those that were not, could be the bases for further research. In light of results of this study and the information presented in it, the following recommendations for further investigations are made:

1. Studies should be conducted with populations similar in composition to the third-grade classes at Thompson Elementary School.

2. Studies should be conducted to determine whether students' self-concept and social studies achievement are affected by small group approaches other than the Jigsaw approach used in this study.

3. Studies should be conducted to determine whether students' self-concept and social studies achievement are
affected by advance organizers other than those used in this study.

4. Studies should be conducted to determine whether students' self-concept and social studies achievement are affected by social studies instruction using a combination of small- and large-group instruction.

5. Studies should be conducted to determine whether students' self-concept and social studies achievement are affected by the treatment programs used in this study when these programs are applied to different age or grade levels.

6. Studies should be conducted using a research design creating experimental classes initially through random assignment.

7. Studies should be conducted to determine whether students experienced prejudice reduction as a result of the use of Jigsaw cooperative small groups.

8. Studies should be conducted to determine the long-term effects of Jigsaw cooperative small group instruction and advance organizers on the self-concept and social studies achievement of students.

9. Studies should be conducted to determine whether students' self-concept and social studies achievement are affected by factors such as sex, age, socioeconomic status, race, learning style, and intelligence.
10. Studies should be conducted to determine whether students' self-concept and social studies achievement are affected by teacher characteristics such as age, race, sex, training, and years of experience.

11. Studies should be conducted to determine if students are motivated by the types of treatment programs used in this study.

12. Studies should be conducted assessing the effects of conventional classroom instruction on the teacher-perceived (inferred) self-concept of students.

13. Studies should be conducted assessing the effects of using a variety of contingency factors with Jigsaw small-group instruction.

14. Studies should be conducted assessing the results of pre- to post-sociometric tests when using Jigsaw small-group instruction.
REFERENCES


APPENDIX A

ADVANCE ORGANIZER SUMMARIES
The central business district is the place where the people of the metropolitan community come to work and shop. Since there are so many people in the central business district, laws, or rules, help the people get along with one another.

To buy things in the city, people need money. People earn money by being producers. People work to produce goods and to get what they want.

People exchange the goods they make for the goods they want. They use money, a medium of exchange, to help them get goods. Before money was invented, people had to barter. Barter means exchanging one good for another. For example, a man might trade one cow for 10 sacks of rice.

Because money is a medium of exchange it has another use, that of value. Value means the worth of a thing. Money is also a way of storing value by saving it.

The best way to save money is in a savings bank. Money in a savings bank earns more money or interest. People and businesses also borrow money from banks. They must pay the bank interest on the loans. Banks use some of this interest to pay interest to savers.
Transportation services are very important to the people living in or near big cities. Mass transit is a type of transportation that can carry many people from place to place. Some mass transit, like railroads and taxis, is a private service. Public mass transportation includes buses and subway trains.

Safety and health services are also needed in cities. Firemen and policemen are examples of safety services. In a large city there are hundreds of policemen and firemen.

Services are also needed to keep big cities clean and healthy. These are health services. Street cleaners and trash collectors help to keep our cities free from dirt and trash.

Public utilities are another important service that many people want and need. Electricity, gas for heating, and water are all public utilities.

There are other services, too. Always in big cities there are some people who cannot take care of themselves. Charity is one way to help these people. Charity means to love and help other people. Most people who have extra money usually give a part of their money to charities. Welfare is government-operated programs to help poor people, sick people, and people who cannot find jobs.
APPENDIX B

ADVANCE ORGANIZER OUTLINES
Advance Organizer--Packet 18

Work and Trade in the City

I. The riddle of the city
   A. Many people work and live in the Central Business District.
   B. Cities have laws that people in a community must obey.
   C. Laws help with city problems.

II. Work and the pursuit of happiness
   A. In the city most grown-ups work.
   B. People earn money by being producers.
   C. Goods are produced that other people want.
   D. People work to produce goods and get what they want.

III. How money helps people trade or exchange goods.
   A. Money is a medium of exchange.
   B. People exchange money for the goods they want.
   C. Barter means exchanging one good for another.
   D. Money is also a measure of value.

IV. Savings, Banks, and Capital
   A. Money in a savings bank earns more money or interest.
   B. Banks use the money they get from people and businesses.
C. Borrowers must pay back their loans to banks.

D. Banks use the interest from loans to pay interest to savers.
City Services

I. Transportation services
   A. Mass transit is transportation that can carry many people from place to place.
   B. Trains are an example of mass transit.
   C. Public transportation, which is run by the government, usually includes buses and subways.
   D. Taxis and trains are examples of private transportation.

II. Safety and health services
   A. Police, fire fighters, and ambulances are examples of safety services.
   B. Health services include street cleaners, trash collectors, and sewage treatment plants.
   C. Cities need more of these services than do villages and small towns.

III. Public utilities
   A. Public utilities are services that people want.
   B. Electricity, gas for heating, and water are examples of public utilities.

IV. Private charity and welfare services
   A. All communities have some people who cannot take care of themselves.
B. Charity is loving and helping people. Most people with extra money give some of it to charities.

C. Welfare means government programs that help poor people, sick people, and people who cannot get jobs.
APPENDIX C

ADVANCE ORGANIZER KEY TERMS
Advance Organizer--Packet 18
Work and Trade in the City

Central business district--the place where the people of the metropolitan community come together to work and shop.

Laws--the rules that people in a community must obey. Laws help people get along with one another.

Medium of exchange--money is used as a medium of exchange. When people exchange goods, money goes from buyer to seller.

Barter--exchanging one good for another good. For example, a man might trade one sheep for 10 sacks of corn.

Interest--money in a savings bank earns more money called interest. The bank pays money to people for being allowed to use their savings.

Value--the worth of something. Money is a measure of value.

Loan--when people or businesses borrow money from banks, this is called a loan.
City Services

Mass transit—transportation that can carry many people from place to place. Trains and buses are examples of mass transit.

Public transportation—transportation run by the government. Buses and subways are often public services.

Private transportation—train companies and taxis are often privately owned and operated.

Safety services—police, fire fighters, and ambulances are examples of safety services.

Health services—services needed to keep a big city clean and healthy. Trash collectors and street cleaners are examples of health services.

Public utilities—services that people want such as electricity, gas for heating, and water.

Charity—loving and helping other people. Most people with extra money give some of it to charities.

Welfare—services provided by the government for poor people, sick people, and for people who cannot get jobs.
APPENDIX D

ADVANCE ORGANIZER QUESTIONS
Advance Organizer--Packet 18

Work and Trade in the City

1. Where do people of the metropolitan community often come together?
2. What are laws?
3. What are some things a person might do in the Central Business District?
4. Why is money called a medium of exchange?
5. Barter means to do what?
6. Why is barter a poor way of trading?
7. What is interest?
8. How do banks use the money they get from people and businesses?
9. How is money a measure of value?
City Services

1. What is mass transit? Name several examples of mass transit.

2. Buses and subways are often what type of transportation?

3. Taxis and trains are usually what type of transportation?

4. Police and fire fighters are what kind of city service? Can you name three health services?

5. What are public utilities? Name some examples of public utilities.

6. What is the difference between charity and welfare?
Group leader directions for:
Pac ket ______

1. Carefully read all directions to yourself.
2. Pass out advance organizers to each group member.
3. Read the advance organizer aloud to your group.
4. You and each group member are to read silently pages ______ in the textbook.
5. After most people in the group have finished reading pages ______ silently, you are to read pages ______ aloud to the group.
6. As you read aloud, be sure and ask group members to answer aloud any questions found on the pages. They usually have alphabet letters beside them.
7. When pages ______ have been read aloud and the questions have been answered, pass out a question sheet to each group member. Be sure each member remembers his/her code.
8. On your teacher’s signal you will go to your subgroups to answer your assigned questions.
9. Finish up assigned questions in your subgroup.
10. When your teacher signals, go back to your original group and have each member share his/her answers to the answer sheet.
11. Make sure all group members write down on their question sheets the answers to all questions.
12. After discussing all answers, turn them in to your teacher.
APPENDIX F

QUESTION SHEET
Question Sheet--Packet 18

Work and Trade in the City

* 1. What are some things a person might do in the Central Business District?

* 2. How do laws help people?

* 3. What are some city problems? How can the laws help with the problems?

* 4. How does a person's work help him or her to be happy?

5. What is our most important medium of exchange? Follow what happens to the $10.00 on page 179. What goods were exchanged with the help of the $10.00?

6. Why is barter a poor way to trade?

7. What are two other uses of money?

8. What is interest? How do banks make money?
Question Sheet--Packet 22

1. What is mass transit transportation?

2. What would happen if everyone drove cars into the city to work and shop?

3. Name two types of public transportation.

4. Why do large cities need so many policemen and firemen?

5. Street cleaners and doctors both help to make up what kind of city service?

6. What are public utilities? Name three different public utilities.

7. Are telephones a public service or a private service?

8. In what two ways are poor and sick people taken care of in cities and villages?
APPENDIX G

PIERS-HARRIS CHILDREN'S SELF-CONCEPT SCALE
"THE WAY I FEEL ABOUT MYSELF"

The Piers-Harris Children's Self-Concept Scale
Ellen V. Piers, Ph.D. and Dale B. Harris, Ph.D.

Published by
Western Psychological Services
Publishers and Distributors
12031 Wilshire Boulevard
Los Angeles, California 90023

Name: ___________________________ Today's Date: ______
Age: _______ Sex (circle one): Girl Boy Grade:_____
School: ________________________ Teacher's Name (optional)_____

Directions: Here are a set of statements that tell how some people feel about themselves. Read each statement
and decide whether or not it describes the way you feel about yourself. If it is true or mostly true for you,
circle the word "yes" next to the statement. If it is false or mostly false for you, circle the word "no."
Answer every question, even if some are hard to decide.
Do not circle both "yes" and "no" for the same statement.
Remember that there are no right or wrong answers.
Only you can tell us how you feel about yourself, so we hope you will mark the way you really feel inside.

TOTAL SCORE: Raw Score_____ Percentile_____ Stanine_____
CLUSTERS: I_____ II_____ III_____ IV_____ V_____ VI_____
1. My classmates make fun of me ............ yes no
2. I am a happy person ............... yes no
3. It is hard for me to make friends ....... yes no
4. I am often sad .................. yes no
5. I am smart ...................... yes no
6. I am shy ........................ yes no
7. I get nervous when the teacher calls on me . yes no
8. My looks bother me ............... yes no
9. When I grow up, I will be an important person .................. yes no
10. I get worried when we have tests in school . yes no
11. I am unpopular .................... yes no
12. I am well behaved in school ........ yes no
13. It is usually my fault when something goes wrong ................. yes no
14. I cause trouble to my family .......... yes no
15. I am strong ...................... yes no
16. I have good ideas ................ yes no
17. I am an important member of my family . yes no
18. I usually want my own way ............ yes no
19. I am good at making things with my hands .. yes no
20. I give up easily .................. yes no
21. I am good in my school work ........ yes no
22. I do many bad things ............... yes no
23. I can draw well .................. yes no
24. I am good in music ................ yes no
25. I behave badly at home .............. yes no
26. I am slow in finishing my school work . . . yes no
27. I am an important member of my class . . . yes no
28. I am nervous . . . . . . . . . . . . . yes no
29. I have pretty eyes . . . . . . . . . . yes no
30. I can give a good report in front of the class . . . . . . . . . yes no
31. In school I am a dreamer . . . . . . yes no
32. I pick on my brother(s) and sister(s) . . . yes no
33. My friends like my ideas . . . . . . yes no
34. I often get into trouble . . . . . . yes no
35. I am obedient at home . . . . . . yes no
36. I am lucky . . . . . . . . . . . yes no
37. I worry a lot . . . . . . . . . . . yes no
38. My parents expect too much of me . . . yes no
39. I like being the way I am . . . . . . yes no
40. I feel left out of things . . . . . yes no
41. I have nice hair . . . . . . . . . . yes no
42. I often volunteer in school . . . . . yes no
43. I wish I were different . . . . . yes no
44. I sleep well at night . . . . . . yes no
45. I hate school . . . . . . . . . . . yes no
46. I am among the last to be chosen for games . yes no
47. I am sick a lot . . . . . . . . . . yes no
48. I am often mean to other people . . . yes no
49. My classmates in school think I have good ideas . . . . . . . . . . . yes no
50. I am unhappy . . . . . . . . . . . yes no
51. I have many friends ................ yes no
52. I am cheerful ..................... yes no
53. I am dumb about most things ........ yes no
54. I am good-looking .................. yes no
55. I have lots of pep ................... yes no
56. I get into a lot of fights .............. yes no
57. I am popular with boys .............. yes no
58. People pick on me .................. yes no
59. My family is disappointed in me ........ yes no
60. I have a pleasant face ................ yes no
61. When I try to make something, everything seems to go wrong ........ yes no
62. I am picked on at home .............. yes no
63. I am a leader in games and sports ........ yes no
64. I am clumsy ........................ yes no
65. In games and sports, I watch instead of play ................ yes no
66. I forget what I learn ................ yes no
67. I am easy to get along with ........ yes no
68. I lose my temper easily .............. yes no
69. I am popular with girls .............. yes no
70. I am a good reader ................ yes no
71. I would rather work alone than with a group ................ yes no
72. I like my brother(sister) .............. yes no
73. I have a good figure ................ yes no
74. I am often afraid ................ yes no
75. I am always dropping or breaking things . . yes no
76. I can be trusted . . . . . . . . . . . . yes no
77. I am different from other people . . . . yes no
78. I think bad thoughts . . . . . . . . . . yes no
79. I cry easily . . . . . . . . . . . . . . yes no
80. I am a good person . . . . . . . . . . yes no
APPENDIX H

INFERRED SELF-CONCEPT SCALE
INFERRED SELF-CONCEPT SCALE

by E. L. McDaniel, Ph.D.

Published by
Western Psychological Services
Publishers and Distributors
12031 Wilshire Boulevard
Los Angeles, California 90023

Information on Child

Name _________________________ Ethnic Group _________________________

Date of Birth ___________ Age _______ Sex _________

School _______________________ Examiner _______ Date _________

Supplementary Information (As Desired for Research)

Test Scores

1. Mental Maturity Test (______________________________)
   Date______________________

   Language
   Non-Language
   Total

   I.Q.
   Standard Score(T)

2. Achievement Test (______________________________)
   Date______________________

   Reading
   (Comprehension)
   Arithmetic
   (Computation)

   Raw Score
   Standard Score
   Grade Equivalent

Classifying Data (Check where appropriate)

☐ Male ☐ Female ☐ Only Child ☐ Oldest Child
☐ Middle Child ☐ Youngest Child
Directions: You are asked to describe your perception of a student's self-concept in terms of the following items. Please indicate your rating on each item by circling one of the five numbers at the right of each item.

<p>| | | | | |</p>
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<tr>
<td>Never</td>
<td>Seldom</td>
<td>Sometimes</td>
<td>Usually</td>
<td>Always</td>
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1. Enjoys working with others. For example, student may smile, laugh, or look pleased when engaged in productive group activity.

2. Exhibits self-confidence. For example, student initiates activities, goes ahead in work and play without direction.

3. Plays with smaller or younger children. For example, student seeks simple play activities in order to excel or dominate peers.

4. Evidences strong pleasure in good work. For example, student voluntarily redoes poor or sloppy constructions, paperwork, coloring, etc. unless he is satisfied (may smile, chuckle, sigh, look pleased) with his product.

5. Is antagonistic to adults. For example, student talks back, refuses to obey, balks in the presence of adults.

6. Has unrealistic expectations for himself. For example, student sets minor and/or major goals, academically and/or physically, which he is incapable of attaining.

7. Is easily discouraged. For example, student ceases activity when minor failure or mishap occurs.
8. Appears unsociable. For example, student plays and works alone. He may leave setting or activity when others join him ............... 1 2 3 4 5

9. Cries easily. For example, student "puckers up" or tears come to his eyes when he has a mishap, failure, or difficulty with activity (work or play) or with interpersonal relationships ............... 1 2 3 4 5

10. Is unfriendly to classmates. For example, student works and plays alone. He leaves activity when others appear and refuses (with words or gestures or looks) friendly overtures ............... 1 2 3 4 5

11. Tries to dominate or bully. For example, student attempts to lead activities even though this is counter to desires of group. He attempts to force his wishes, verbally and/or physically on others . 1 2 3 4 5

12. Fights ............... 1 2 3 4 5

13. Talks compulsively. For example, student does not await his turn, nor stop talking when his turn is over. He has to "have his say" to peers and adults ............... 1 2 3 4 5

14. Seems afraid of teacher. For example, student never disagrees with teacher. He does not voluntarily speak up or perform and seems to withdraw physically from any contact with teacher ............... 1 2 3 4 5
15. Feels he is "picked on" by classmates. For example, student claims others treat him "unfairly." He claims they make him do more "work" (and have less "fun") ............... 1 2 3 4 5

16. Gives up easily. For example, student meets difficulty or mishap with work or play by ceasing activity .................. 1 2 3 4 5

17. Is defiant. For example, student rejects criticism. He may do so verbally (sass) and/or nonverbally (tear up work, destroy game, disrupt group activity, fight) ............... 1 2 3 4 5

18. Thinks he is right. For example, student does not seek verification of his procedures in work or play. He proceeds when his own goal is satisfied .................. 1 2 3 4 5

19. Is ready to accept blame when at fault. For example, student does not try to shift accusations or rebukes to others for his actions ............... 1 2 3 4 5

20. Is trusting. For example, student has unquestioning reliance in statements, actions, and justice of others. He is not suspicious of their motives .................. 1 2 3 4 5

21. Seems to have a "chip" on his shoulder. For example, student misinterprets expressed thoughts, motives, and actions of others in both work and play as being opposed to his best interests ............... 1 2 3 4 5
22. Is quarrelsome or argumentative. For example, student may taunt others and/or disagree with the statements of others . . . . . . . . . 1 2 3 4 5

23. Is "oversensitive." For example, student may cry or withdraw or become silent when his statements or actions are questioned . . . . . . 1 2 3 4 5

24. Provokes hostility from classmates. For example, student may tease others and/or disagree with statements by others. He may do these things verbally or nonverbally . . . . 1 2 3 4 5

25. Thinks his teacher likes him. For example, student acts happy (may smile, work, or play as if content) when in presence of teacher . 1 2 3 4 5

26. Tattles. For example, student tells teacher of statements and actions which were not intended for teacher to know about . . . . . . . . . . . . . . . 1 2 3 4 5

27. Is withdrawing. For example, student does not play and/or work with peers . 1 2 3 4 5

28. Is tearful. For example, student backs away or withdraws from routine activities (work and/or play) where he could be hurt, or where he might undergo stress or be embarrassed . . . . 1 2 3 4 5

29. Seems satisfied with level of performance. For example, student does not withdraw from work and/or play situations and appears visibly to be content . . . . . . . . . . . . . . . . . . . . . 1 2 3 4 5
30. Appears worried. For example, student may have an anxious "look" (i.e., furrowed brow, "cowed" expression) ................................ 1 2 3 4 5

TOTAL SCORES = [ ] + [ ] + [ ] + [ ] + [ ] + [ ]
APPENDIX I

SIXTY-ITEM SOCIAL STUDIES TEST
Social Studies Test

Name ________________________________

Homeroom ________________________________

Directions: Each question has 4 answer choices. Circle the one answer you think best answers the question.

1. We live on the planet:  
   A. Mars  B. Alabama  C. Earth  D. North Pole

2. The earth rotates on its _______ once every 24 hours.  
   A. Poles  B. Axis  C. Equator  D. Revolution

3. As the earth rotates it travels around the:  
   A. Equator  B. Planet  C. Moon  D. Sun

4. This is an imaginary line around the center of the earth:  
   A. North Pole  B. Equator  C. South Pole  D. Axis

5. Day and night are caused by the earth's:  
   A. Poles  B. Equator  C. Rotation  D. Mountains

6. It takes the earth this long to make one revolution around the sun:  
   A. One day  B. One year  C. One week  D. One month

7. A high, flat area of land is a:  
   A. Plain  B. Peninsula  C. Plateau  D. Source

8. The place where a river begins is called a:  
   A. Plain  B. Ocean  C. Source  D. Plateau

9. Land that has water almost all around it is an/a:  
   A. Island  B. Peninsula  C. Lake  D. Ocean

10. Water that falls to the earth is called:  
    A. Temperature  B. Precipitation  C. Weather  D. Climate

11. Oil, ores, and water are all:  
    A. Natural resources  B. Rocks  C. Climate  D. Weather
12. A dry place with hardly any plants is a:
   A. Lake  B. Plain  C. Plateau  D. Desert

13. A very cold, dry region is called a:
   A. Desert  B. Forest  C. Tundra  D. Plain

14. The top layer of land on the earth is called:
   A. Soil  B. Desert  C. Rock  D. Forests

15. Dead plants and animals that have rotted in the soil are called:
   A. Humus  B. Germs  C. Ores  D. Rocks

16. Low land between higher landforms is a:
   A. Hill  B. Ridge  C. Valley  D. Peninsula

17. When we learn about our community's past we are learning about:
   A. Geography  B. Government  C. History  D. Cities

18. Making goods in factories and shops is called:
   A. Banks  B. Industry  C. Markets  D. Government

19. Things that people do for other people are:
   A. Government  B. Services  C. Factories  D. Banks

20. People who come to live in a new country are called:
   A. Visitors  B. Exports  C. Imports  D. Immigrants

21. A safe place for ships to stay near the shore is a:
   A. City  B. Lake  C. Harbor  D. Beach

22. A part of a sea or lake reaching into the land is an/a:
   A. Peninsula  B. Bay  C. Ocean  D. Plain

23. Carrying goods or people from one place to another is:
   A. Wheels  B. Roads  C. Transportation  D. Banking

24. These are persons who are bought and sold:
   A. Soldiers  B. Bankers  C. Slaves  D. Workers

25. Places with farms and small villages are:
   A. Cities  B. Urban areas  C. Lakes  D. Rural areas
26. Large cities and towns are:
   A. Rural areas  B. Urban areas  C. Farms  D. Rural society

27. Persons who make new things are:
   A. Bankers  B. Teachers  C. Inventors  D. Machines

28. Places outside a city are called:
   A. Suburbs  B. Factories  C. Metropolis  D. Central City

29. Large metropolitan areas have many:
   A. Rural areas  B. Communities  C. Mountains  D. Forests

30. A community area in which there are many homes is a:
    A. Business area  B. Rural area  C. Residential area  D. Factory area

31. A very run-down neighborhood is called a:
    A. City  B. Town  C. Slum  D. Residential area

32. To make old city areas new again is called:
    A. Slums  B. Urban renewal  C. Government  D. Industry

33. Many people who live in the suburbs work in the:
    A. Suburbs  B. Park  C. Rural areas  D. Central City

34. Rural areas have very few:
    A. Trees  B. Farms  C. Stores  D. Animals

35. The busiest place in the metropolitan community is the:
    A. Suburbs  B. Central business district  C. Rural areas  D. Residential areas

36. The first people to live in America crossed a land bridge from the continent of:
    A. Europe  B. Africa  C. South America  D. Asia

37. The first people in America were:
    A. Immigrants  B. Indians  C. Slaves  D. Soldiers

38. To choose one's own way of life is:
    A. Freedom  B. Society  C. Government  D. Slavery
39. The ways a culture has of doing things is called:  
A. Society  B. Government  C. Freedom  
D. Customs

40. A person's parents, grandparents, great grandparents, 
and so on are:  
A. Friends  B. Ancestors  C. Customs  
D. Immigrants

41. The United States is a country of how many cultures:  
A. Many  B. Few  C. One  D. None

42. The word liberty stands for:  
A. Government  B. Police  C. Freedom  
D. Immigrants

43. The rules that people in a community must obey are 
called:  
A. Religion  B. Society  C. Government  
D. Laws

44. Banks make money by charging people:  
A. Interest  B. Savings  C. Loans  
D. Production

45. Goods for sale that are sent out of a country are 
called:  
A. Imports  B. Transportation  C. Exports  
D. Travel

46. Goods for sale that come from another country are 
called:  
A. Imports  B. Transportation  C. Exports  
D. Travel

47. Which product below would we probably sell to Japan?  
A. Small cars  B. Fish  C. Coca-Cola  D. Rice

48. You would probably find this job in rural areas:  
A. Factory worker  B. Farmer  C. Tailor  
D. Judge

49. What kind of tax do people pay when they buy such 
things as clothes and books?  
A. Sales tax  B. Income tax  C. Real estate tax  
D. House tax

50. Who gets the tax money to run a community's public 
services?  
A. Police department  B. Colleges  
C. The government  D. Teachers
51. The kind of transportation that can carry many people from place to place is called:
A. Commuters  B. Trucks  C. Mass transit  D. Boats

52. A train that runs underground is a:
A. Subway  B. Plane  C. Commuter  D. People mover

53. Telephones and electricity are examples of:
A. Private utilities  B. Private services  C. Public utilities  D. Public services

54. To love and help other people is called:
A. Welfare  B. Public services  C. Utilities  D. Charity

55. In the United States, our government is divided into three:
A. Branches  B. States  C. Cities  D. Buildings

56. Each state in the United States has:
A. Mountains  B. A state capital  C. Beaches  D. Deserts

57. To choose someone by voting is called:
A. A jury  B. A constitution  C. An election  D. Production

58. In most cities the person who runs the government and public services is called a:
A. Policeman  B. Lawyer  C. President  D. Mayor

59. A government placing anyone it does not like in jail is an example of:
A. Good laws  B. Bad laws  C. Police  D. Voting

60. Freedom is one of our:
A. Taxes  B. Public services  C. Values  D. Enemies
APPENDIX J

SOCIограмма
HOW I FEEL ABOUT OTHERS IN MY CLASS

Today you are going to answer eight questions about the students in your homeroom. You have been given a homeroom sheet with each student's name and a number. Use the number, not the student's name, in answering your questions. Read each question carefully as I read them aloud to you. Place a student's number on each blank for each student you think best fits the question. There are three blanks for each question. Be sure and place one number in each blank. If the teacher knows the way you really feel about other members of your class, he or she can often plan things better. There are no right or wrong answers.

1. Which three persons in this class do you personally like the most? Using your class list with names and numbers, write the three numbers in the blanks.

   Pupil's Number

   The three I like most are:

2. Which three persons do you personally like the least? Write the numbers in the blanks.

   Pupil's Number

   The three I like least are:
3. Which three persons in this class are most cooperative with the teacher and like to do what the teacher wants the class to do?

Pupil's Number

The three students who cooperate the most are:

4. Which three persons in this class most often go against the teacher and what he or she would like the class to do?

Pupil's Number

The three pupils who most often go against the teacher are:

5. Which three persons would you most like to work with in social studies class?

Pupil's Number

6. Which three persons would you least like to work with in social studies class?

Pupil's Number
7. Which three persons in this class do you think are the best in learning new things in school?

Pupil's Number


8. Which three persons in this class do you think are the worst in learning new things in school?

Pupil's Number


