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The effects of grouping fourth grade students into cooperative learning groups by learning patterns

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THE EFFECTS OF GROUPING FOURTH GRADE STUDENTS INTO COOPERATIVE LEARNING GROUPS BY LEARNING PATTERNS

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ABSTRACT

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THE EFFECTS OF GROUPING FOURTH GRADE STUDENTS INTO COOPERATIVE LEARNING GROUPS BY LEARNING PATTERNS
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The purpose of this study was to evaluate the performance of fourth grade students working in cooperative learning groups. Students worked in three cooperative learning groups in order to determine whether grouping students heterogeneously into cooperative learning groups based on individual students' learning pattern would have a positive correlation with group and individual success. First students were grouped randomly and then homogeneously by learning pattern, and lastly heterogeneously by learning pattern. During each cooperative learning experience groups were expected to complete in-class group work. Students were then given a quiz and a test on the material covered during their cooperative learning groups. Moreover, students' ability to cooperate and complete the assignments was observed and recorded.

The findings of this study indicated that grouping fourth grade students into cooperative learning groups heterogeneously by learning patterns were overall more successful. The data indicated that students working in heterogeneous cooperative learning groups achieved a higher class average on in-class group assignments then the random and homogeneous groups based on learning pattern. However, not all data was statistically significant. Moreover, teacher-researcher's observations revealed that student participation, involvement, and cooperation among group members during heterogeneous cooperative groups was significantly better in comparison to both homogenous and random cooperative groups.

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TABLE OF CONTENTS

Chapter One

Scope of the Study

Introduction

"To be a teacher means to make a lifelong commitment to keeping the learner central to the teaching-learning process"(Johnston, 1996, p. 4). In order to make this commitment it is imperative to understand the way in which each individual student processes, internalizes and applies information. There are many theories based on how students learn including learning patterns, learning styles, brain based theories, and the theory of multiple intelligences. Moreover, many studies have been done to evaluate the use of cooperative learning within the classroom. Studies indicate that cooperative learning is a successful strategy for students at all spectrums of the intellectual continuum. However, the question remains as to how to group students into cooperative learning groups. Ability level grouping is evident in education. As more educators incorporate cooperative learning into the classroom there is apparent evidence that grouping students heterogeneously be it by ability level, or another defined variable can have a direct effect on the success of the group (Woolfolk, 2001).

This study focused on the effects of grouping students by defined learning patterns(as defined by Johnston, 1996). Research regarding grouping students by learning styles or patterns for cooperative learning activities is limited. However, there are extensive studies regarding both cooperative learning and the different types of

learning styles or patterns. Johnston's Unlocking the Will to Learn (1996) defines four learning patterns: the sequential, confluent, precise, and technical patterns.

The purpose of this study is to determine whether grouping students heterogeneously into cooperative learning groups based on individual students' learning pattern will have a positive correlation with group and individual success. Grouping students according to learning patterns will add diversity in learning patterns and a group dynamic that may otherwise not be attained. Within the group all learning patterns will be represented; therefore each student will bring their own individual input and talents to the group. Furthermore, grouping students heterogeneously by learning patterns aims to produce more complete and exceptional work.

Statement of the Problem

The use of cooperative learning groups in the classroom can enhance academic achievement. However, there are questions concerning the most beneficial way to organize students into cooperative learning groups. The purpose of this study was to determine whether grouping students by learning patterns would improve cooperative learning activities and group and individual grades.

The research questions for this study were:

- Will intentional grouping of students according to their learning pattern increase student achievement during cooperative learning experiences?
- Will intentional grouping of students according to their learning pattern increase individual student achievement on material covered during cooperative learning groups?

- Will intentional grouping of students according to their learning pattern ensure that students are participating fully, equally, and appropriately in cooperative learning experiences?

Statement of the Hypotheses

The following hypotheses were tested:

- Fourth grade students working in heterogeneous learning groups according to their learning pattern will achieve significantly higher group grades then fourth grade students working in random groups and homogeneous groups based on learning patterns.
- Fourth grade students will achieve significantly higher individual grades on a quiz and a test covering material discussed during heterogeneous cooperative learning groups according to their learning pattern then fourth grade students working in random groups and homogeneous groups based on learning patterns.
- Fourth grade student behavior will improve during heterogeneous cooperative learning groups.
- Fourth grade students will cooperate with each other and all students will contribute and be active during heterogeneous group work more so then fourth grade students working in random groups and homogeneous groups based on learning patterns.

Limitations

The following elements may have effected the reliability and/or validity of this study:

First, the length in time available for implementing cooperative learning in the classroom was limited. The amount of time to evaluate these strategies was less than four months, which results in a limited treatment period. Time constraints placed upon then study may have impacted the validity and reliability of this study.

Second, the subjects were one of convenience, which limits the manner in which results can be inferred to the total population.

Thirdly, the cultural and socioeconomic makeup of the population was not stratified; consequently all groups of the general population may not have been represented.

Lastly, the number of students in each group involved in this study was a limitation. There were nineteen students in the class; therefore one group had four students, which could be more or less beneficial depending on the individuals. Also absent students missed whole class instruction on the topic and therefore could not contribute to the group discussion and work, which could skew the group average. Furthermore, there were four inclusion students, which could skew the group average. An awareness of these limitation will limit the generalizability of the findings.

Definition of Terms

For the purpose of this study, the following terms were defined as followed:

- Cooperative Learning: Arrangement in which students work together in a group in order to complete a given task.
- Homogeneous Grouping: Arranging students into groups according to a variable that is the same among group members (i.e. learning pattern).
- Heterogeneous Grouping: Arranging students into groups according to a variable that is different among group members (i.e. learning patterns).

- Random Grouping: Arranging student into groups with no reason or pattern.

- Learning Pattern: The way a learner sees the world, takes in stimuli, integrates the stimuli and formulates a response to it.

- Sequential Pattern: A learning pattern. This pattern seeks order and consistency. This type of processor needs clear directions, practice and planning, time to complete work, and neatness.

- Precise Pattern: A learning pattern. This pattern wants to know exactly what is going on. The precise processor needs; correct and detailed information and frequently asks and answers questions and writes and answers questions in detail.

- Technical Pattern: A learning pattern. The technical pattern processes technically using independent reasoning. The technical processor needs hands on experiences, autonomy, and real world experiences.

- Confluent Pattern: A learning patter. This pattern relies on intuition rather than specific information or knowledge of how something works. The confluent processor needs to use their own ideas, use imagination, and writes the same way they say things (i.e. Creative writing, presentations).

- Learning Combination Inventory (LCI): an instrument through which individuals or teachers can become aware of the different ways their pupils learn. It is a 28-item self-report instrument that quantitatively and qualitatively captures the degree to which an individual uses each of the four learning patterns (Johnston).

Chapter Two

Review of the Literature

Introduction

This study focused on whether fourth grade students working in heterogeneous learning groups according to their learning pattern (as defined by Johnston, 2001) would achieve significantly higher group grades then fourth grade students working in random groups and homogeneous groups based on learning patterns. Additionally, this study hypothesized that fourth grade students would achieve significantly higher individual grades on a quiz and a test covering material discussed during heterogeneous cooperative learning groups according to their learning pattern then fourth grade students working in random groups and homogeneous groups based on learning patterns. Also this study evaluated fourth grade students ability to cooperate with each other during heterogeneous grouping hypothesizing that all students will contribute and be active during heterogeneous group work more so than fourth grade students working in random groups and homogeneous groups based on learning patterns.

Many studies have been done regarding cooperative learning. The research has indicated that cooperative learning enhances academic achievement. The research has further suggested that cooperative learning aids in problem solving, improves social relations among students, positively affects self esteem, and improves students retention. However, there are still questions concerning the most beneficial way to organize students into cooperative learning groups to facilitate learning among all group members.

Definition of Learning

There have been multiple studies done to evaluate the way in which one learns new information. However, defining learning is a challenging feat considering it is an abstract process. One definition of learning states, "true learning is the ability to apply a skill or fact to real life" (Barbe, 1985, p.16).

Learning Theories

If defining learning is not an easy task, then pinpointing a technique or style in which individuals learn is even more challenging. Therefore, there are several studies and theories behind how individuals learn. These studies examine individuals learning styles or the way in which a person acquires knowledge. Although there is an abundant amount of literature concerning learning styles, it can be confusing because of the inconsistency in terminology and the plethora of styles researched. The term learning style first emerged in the 1970s (Barbe, 1985). The National Association of Secondary School Principals [NASSP] sponsored a study on learning styles by a national task force of leading theorists in the field, and the study produced a comprehensive definition of learning styles. The group defined learning styles as, "the composite of characteristic cognitive, affective, and physiological factors that serve as relatively stable indicators of how a learner perceives, interacts with, and responds to the learning environment" (Keefe, 1979). A few of the major theories regarding learning styles include: Howard Gardner's theory of multiple intelligences, Jean Piaget's learning theory regarding developmental stages, and the brain- based theory to learning. Another theory regarding learning is Christine Johnston's learning theory, which defines four learning patterns, the precise, confluent, technical, and sequential pattern.

Howard Gardner's Eight Multiple Intelligences

Psychologist Howard Gardner identified eight main intelligences. In an article in Educational Leadership by Kathy Checkley, Gardner states that multiple intelligences is not the same as a learning style. However, many view Gardner's multiple intelligences as different learning styles (Checkley, 1997). Although intelligences are considered different from learning styles, it is important to understand the different intelligences in order to identify strengths and weaknesses regarding learning styles (Checkley). Gardner's work focuses on how children learn and how they should be taught (Checkley). The intelligences consist of linguistic, logical, spatial, musical, bodily kinesthetic, interpersonal, intrapersonal, and the naturalist intelligence. The linguistic intelligence describes learners who love to read, write, and tell stories. Learners tend to memorize places, dates, names, and trivia easily. They also have the ability to repeat back information. The logical intelligence describes learners who are interested in patterns, categories, and relationships. They may also be drawn to arithmetic problems, strategy games and experiments. Next, spatial intelligence deals with the visualizers. They think in images and pictures; they may be fascinated with mazes, puzzles, or spend free time drawing, building things, or daydreaming. The musical intelligence is good at noticing details, pitches, and rhythms that may escape the normal listener. They are excellent at keeping tune, and learn best through rhythm, melody, and music (Mantle, 2001). The bodily kinesthetic intelligence is the capacity to use your whole body or parts or your body to solve problems, make something, or put on a production. These learners may have a hard time staying still, touch everything, and would rather play sports or do a craft than sit and read. Next, individuals who have a strong interpersonal intelligence may be

considered social butterflies. They are skilled in dealing with other people. Moreover, intrapersonal intelligence describes people who work best alone. They have a strong scene of who they are what they can do, can't do, and what they want to do. Lastly, naturalist intelligence describes individuals who have the ability to discriminate among living things, and features of the natural world. (Mantle).

In Checkley's article, Gardner states that all individuals possess each intelligence on some level, but are usually stronger or prefer some intelligences to others. Gardner further explains that the theory of multiple intelligences has serious educational implications. He states that if we treat everyone as if they are the same we are only catering to one profile of intelligences. The education system seems to focus on the intelligence of language-logic. If a student is not strong in this intelligence, which Gardner states is not the strong intelligence for the vast majority, the student will not reach his/her educational potential (Checkley, 1997).

A study by Baldes, Cahill, and Moretto (2000) evaluated a program to motivate students in kindergarten, fourth grade and sixth grade at two grade schools and one middle school to learn, through multiple intelligences, cooperative learning, and positive discipline. During the study teachers implemented teaching strategies that took into account individual students' strengths and weaknesses regarding their intelligences. The study indicated that the program increased student motivation, participation and student academic achievement and personal growth (Baldes, 2002).

In another study by Greenhawk (1997), an elementary school in Maryland which incorporates multiple intelligences in its curriculum stated that using multiple intelligences as a guide to instruction helped to improve student achievement. The study

examines the schools' incorporation of multiple intelligences over five years. It showed that students' overall achievement and confidence have risen since the program started (Greenhawk, 1997).

Piaget's Theory of Development and Learning

Another learning style theory is that of Swiss biologist and psychologist Jean Piaget. Piaget studied the influences of development on learning (Woolfolk, 2001). He identified four factors: biological maturation, activity, social experiences, and equilibration. These factors interact to influence changes in thinking. Maturation refers to biological changes. Activity is another influence and comes from the increasing ability to interact and learn from the environment. Social experiences consist of the ability to learn from others. Lastly, equilibration is the ability to search for a balance (Woolfolk, 2001).

Piaget further explained learning styles through child development. His theory states that learning is based on the idea that children build cognitive structures or schemes for understanding by responding to experiences (Woolfolk, 2001). Piaget's research also states that as a child matures, his/her cognitive ability also increases. Piaget identifies four developmental stages and processes that children go through. These stages are the sensorimotor stage, preoperational stage, concrete operations, and formal operations. The sensorimotor stage starts at birth and lasts for about 2 years. During this stage the child builds a set of concepts about reality and how it works. The child does not know that physical objects remain in existence even when out of sight. The next stage, the preoperational stage starts at age 2 and lasts until age 7. During this stage children are not able to think abstractly and need concrete physical situations. The next stage is

concrete operations which lasts from age 7 until age 11. During this stage physical experience accumulates and the child starts to create logical structures. The child is now also capable of abstract problem solving (Woolfolk). The last stage is formal operations, which lasts from age 11 to age 15. Piaget believed by this stage the children's cognitive structures are like those of an adult and they are capable of conceptual reasoning (Woolfolk).

In an internet site dedicated to educators (www.funderstanding.com) many of the learning theories are examined. This site further explains reasons behind studying and understanding the learning theories. One theory it discusses is Piaget's learning theory. It states it is important for educators to understand Piaget's learning theory in order to plan a developmentally appropriate curriculum that will enhance students' conceptual and logical growth (www.funderstanding.com/piaget.cfm, 2001). Furthermore, it is important for teachers to emphasize the role that interactions or experiences with the surrounding environment play in student learning (www.funderstanding.com/piaget/cfm 2001).

The Brain-Based Compatible Learning Theory

Another learning theory is the brain-compatible learning theory. There are several main theorists who have explored and researched brain-compatible learning. Eric Jensen (1998) is one theorist who states that he first discovered the brain- compatible learning style. This theory states that new information is presented to the brain; then the brain tries to link it with something already known to give it meaning. If it is able to make a connection with prior knowledge it will retain the information. However if the brain cannot relate it to prior knowledge, it may discard or quickly forget the information (Jensen, 1998).

Two other theorists, Westwater and Wolfe (2000) agree that making a connection between previously stored information helps individuals retain information. When a connection is made the individual or student will be less apprehensive to take on the new information. Moreover, the new information can be personalized which can make it more meaningful and interesting (Westwater & Wolfe, 2000).

Another aspect of the brain-based learning theory deals with the structure and function of the brain. The brain has two main hemispheres, the right and left. The left hemisphere is responsible for rationalizing, analytical thinking, logical thinking, sequencing, and looking at things in parts. Left-brain studies focus on logical thinking, accuracy, and analysis. It is involved in reading, writing, and speech (Bruer, 2002). The right side of the brain is responsible for synthesizing information, holistic thinking, intuition, and looking at things a whole. It gathers information more from pictures and images than from words and is responsible for recognizing places, objects, and people. Right-brain subjects focus on creativity, aesthetics, and feeling. Most individuals prefer one of these styles of thinking. However, some people are more whole-brained and equally able to use both sides of their brain (Bruer).

It is important for educators to take into account and consider students' learning styles in regards to brain-based learning. "In order to be more whole-brained in their orientation, schools need to give equal weight to the arts, creativity, and the skill of imagination and synthesis" (www.funderstanding.com/right_left_brain.cfm, 11/7/02, n.p.).

Johnston's Learning Patterns Theory

Lastly, Johnston defines learning as "a highly personal process whereby individuals use their informed, reflective, and engaged effort to develop their abilities to know, feel, and do" (Johnston, 1996,p. 10). She states that individuals learn best when they understand their personal learning process, and the student must be the central focus of the teaching-learning process. Johnston breaks down individual learning styles or patterns as she refers to them into four categories. These categories are sequential, the need for order; precise, the need for precision and information; technical, the need for independence; and confluent, the need to do things one's own way. Johnston reports that although all students use a variety of learning patterns everyone tends to be stronger in one pattern than another. Therefore, it is important to implement a variety of learning experiences in a classroom. Johnston states in Unlocking the Will to Learn that the process of learning is a highly personal process and individuals use their reflective and informed effort to develop their abilities to know, do, and feel.

In order to understand Johnston's learning patterns, it is necessary to take a closer look at each learning pattern and what characteristics each pattern incorporates. First, individuals who are sequential learners thrive on consistency and dependability. They mentally analyze and organize information. Moreover, sequential learners tend to make lists, break tasks down into steps, and plan first before acting. Next, individuals who are primarily precise learners thrive on details, questions, data, and research. They tend to ask many questions and always want to know more. They may also challenge statements and ideas that they doubt and try to prove they are right. Individuals who primarily use technical strategies to learn like to use tools and technology, and like to solve problems

using a hands-on approach. Individuals who are highly technical want to be able to solve problems by themselves, and want to be able to relate the activity to the real world. Lastly, individuals who primarily use confluent strategies are creative idea generators and risk-takers who enjoy creating unique solutions. They tend to think outside the box and make obscure connections between things that are seemingly unrelated (Johnston, 1996). These individuals may enjoy taking risks and are not afraid to fail, they also will start a task first and then ask questions. Although all students use a variety of learning patterns everyone tends to prefer one style to another. Therefore, it is important for individuals to discover their personal learning pattern in order to take full advantage of learning experiences and strive to strengthen their ability to work within their weaker learning patterns (Johnson). Johnston states that students need to know how to enhance and use their schemas to the best learning advantage. "Seeking to understand each part of a learner's combination of schemas is the key to unlocking each learner's will to learn" (p. 63). In order to do this Johnston and Dainton created a *Learning Combination Inventory*, which is an instrument that is designed to measure an individual's strengths/ weaknesses in each of the four learning patterns (Johnston).

Cooperative Learning

Many studies have been done regarding cooperative learning. The research has indicated that cooperative learning aids in problem solving, improved social relations among students, students' self esteem is positively affected, and students retain more of what is learned (Slavin, 1990).

In the book Small Group Learning in the Classroom by Reid, Forrestal, and Cook cooperative learning is explored and information regarding the successful implementation

of cooperative learning is examined. The literature states that for good learning to occur the classroom should be organized on a collaborative basis (Cook, Forrestal, & Reid, 1990). "For students to understand new information, they must be given the opportunity to engage in the processes of coming to know through problem solving, exploration, observation and practice- with direction and assistance from the teacher" (p.9). Furthermore, Cook et al. states that allowing students to work in small groups encourages them to share and contributes to their language development. It also provides greater intimacy and involvement and the opportunity to respond to and act on what others say, which makes a better situation for developing students' listening abilities. Moreover, Cook et al. states that small groups enable students to teach each other, explaining, questioning, imagining, and reminding in the language and patterns of interaction which they are most practiced and comfortable. Another important aspect of Cook et al. literature is the idea that students learn best if their intention to learn is aroused. Moreover, the literature states that students are most likely to become actively involved in the learning activities taking place in the classroom if they have time to explore how they learn, and have a high degree of choice and responsibility for what, when, and how they learn (Cook et. al). This suggests that if students are more aware of how they learn they will be more successful in cooperative learning groups. Therefore, having students complete the Johnston and Daiton's Learning Combination Inventory could lead to greater success within cooperative learning groups.

In another study done by McManus and Gettinger teachers and students evaluated the effectiveness of cooperative learning and the interactive behaviors. The study states that students and teachers view cooperative learning experiences in a positive light. It

further states that positive social, academic, and overall attitudes come from cooperative learning (McManus & Gettinger, 1996).

The positive affects of cooperative learning have been reported in a multitude of studies; however, the process of grouping students is still a mystery to many educators. Questions surrounding grouping students mainly focus on whether students should be grouped homogeneously or heterogeneously. According to Dumas (2002) most cooperative groups involve small heterogeneous teams of four or five students. Dumas further states that for cooperative groups to be effective, members should engage in teambuilding activities and other tasks that deal with the development of social skills needed for effective teamwork. In regards to grouping, Dumas reports that members should discuss their personal interpersonal skills that influence their ability to work together. Moreover, Dumas feels that diversity within groups should be used as a resource, which can create supportive environments, enable all students to achieve, enhance employability, and improve interpersonal and intrapersonal relationships. Although Dumas states that grouping students heterogeneously by academic achievement is beneficial there is still a question as to whether grouping students homogeneously by learning styles may be beneficial.

Johnson and Roger (2001) states that, "All students need to learn and work in environments where their individual strengths are recognized and individual needs are addressed. All students need to learn within a supportive community in order to feel safe enough to take risks" (p.13). This further strengthens the idea that students should be grouped heterogeneously regardless of learning style or academic achievement.

However, due to the fact that there is little research on grouping students by learning styles leaves little ground to stand on regarding intentional grouping by learning style.

It has been determined that cooperative learning has many positive outcomes for students. It allows students to build upon their strengths and weaknesses. Cooperative learning also encourages and improves social relations. Slavin (1990) states that cooperative learning improves social acceptance of mainstreamed students with learning disabilities (Slavin as sited in Dumas, 2002). Achievement among students in cooperative learning has been reported for nearly fifty years (Dumas). However, the effects depend on the implementation of cooperative learning methods that are characterized by at least two elements: positive interdependence and individual accountability (Slavin as sited in Dumas). In regards to learning styles there are many different theories behind the way in which individuals learn. Johnston's theory of learning patterns is exceptional because it does not just define what the patterns are, but it also supplies the tool, the learning combination inventory, which is used to discover individual patterns. Moreover, it explores each pattern and gives precise ways to identify the patterns and work within and outside of individuals' strengths.

Grouping Students by Learning Patterns

In a study done by Kathleen Pearle at Rowan University, the notion of grouping students according to their four learning patterns was examined. Students in the engineering clinics at Rowan University took the Johnston and Dainton *Learning Combination Inventory* and were organized into cooperative learning teams in order to maximize individual and collective use of learning patterns (Pearle, 2002). Pearle states that the underlying reason for creating learner-based teams was to allow students to gain

a greater understanding of their own personal learning pattern and others learning patterns. She states "team members' need to understand themselves and others was fundamental to successful teaming"(p.3). Pearle further states that each student was placed on a team on the basis of his/her ability to use each of the four patterns at a high level, as needed, or less frequently. This in turn would maximize and balance the learning strengths that each team member would bring to the group (Pearle). When the students were assigned to teams they received information on their learning patterns, their team members' profiles, and the reasons they were assigned to a team. They were also given information on the best way to assign work tasks and how to use knowledge of the patterns to decode assignments (Pearle).

Results from this study indicated that intentional grouping of students according to their personal learning patterns can be extremely beneficial to students. In an exit survey of the participating freshman students, 68.8% said their teams were successful or highly successful in completing projects in which all contributed and communication was good. Another 18.4% said that for the most part the teams were successful. Of the sophomore students who answered the survey, 48.8% rated their teams successful or highly successful. Another 30.5% reported qualified success, but had complaints about one member or times when communication broke down, but successfully completed the assignments (Pearle). Some of the positive responses to the question, "How did your team work together?" were: "The selection of teammates was key and in my opinion was worth the time of identifying learning patters. We all got along and worked well together" (male sophomore, p. 9). "I would want to be on other teams built on the LCI so that I don't get stuck with a team that can't do a specific task" (female sophomore, p. 9).

"It groups the right people together so we can get things done effectively" (male freshman, p. 9).

Although many of the students found this grouping procedure to be beneficial, there were students disappointed in their teams. The complaints came from 12.8% of freshman and 20.7% of sophomores who filled out surveys. However, many of the complaints must be placed in context according to Pearle (2002), who states that the mental modes that the students brought to the setting must be taken into account. Furthermore, many of the complaints were in regards to time scheduling frustrations of groups, workload, and organization of the professors.

The conclusions that Pearle draws from the study include the need to teach teambuilding skills more intentionally. "We need to refine the means by which faculty and students alike can assess and continuously improve the team experience" (p. 11). Pearle also states that it is important to give students effective team experiences by forming student teams that succeed by giving them the tools to form and analyze team behavior. She concludes her study stating that students must build teams purposefully.

Chapter Three

Procedure and Design of Study/ Methodology

Introduction

Many studies have been done regarding cooperative learning. The research has indicated that cooperative learning enhances academic achievement. The research further suggests that cooperative learning aids in problem solving, improves social relations among students, positively affects students' self-esteem, and improves learning retention. However, there are still questions concerning the most beneficial way to organize students into cooperative learning groups. This study focused on the following hypotheses:

- Fourth grade students working in heterogeneous learning groups according to their learning pattern will achieve significantly higher group grades then fourth grade students working in random groups and homogeneous groups based on learning patterns.
- Fourth grade students will achieve significantly higher individual grades on a quiz and a test covering material discussed during heterogeneous cooperative learning groups according to their learning pattern than fourth grade students working in random groups and homogeneous groups based on learning patterns.
- Fourth grade student behavior will improve during heterogeneous cooperative learning groups.

- Fourth grade students will cooperate with each other and all students will contribute and be active during heterogeneous group work more so then fourth grade students working in random groups and homogeneous groups based on learning patterns.

Sample and Subjects

The subjects of this study consisted of 19 fourth grade students, age nine to ten years old. The study was implemented in a suburban, southern New Jersey school district. The class consisted of eleven boys and eight girls- four of the students were inclusion students. The four inclusion students were below fourth grade reading level. The remaining sixteen students were on the fourth grade reading level. The class consisted of sixteen Caucasian students, two African American students, one Philippine student, and one Jamaican student. The majority of students are from a middle socio-economic status. The families living in this district are mostly dual income families.

Experimental Design

Before implementing the design of this study, consultations with several people were necessary. First, the cooperating teacher of the classroom was informed on the topic of the study. After a review and a discussion about the study it was decided that social studies would be the subject area that would utilize cooperative learning. Next the elementary school principal was asked to review the study proposal. Once permission was granted students were given *The Learning Combination Inventory,* which was then scored to determine individual students' learning patterns.

This study was divided into three main phases. The three main phases consisted of students working in three different cooperative learning groups in order to determine which phase yielded the most successful group and individual grades. The cooperative learning groups consisted of a random group, a homogeneous group based on learning patterns, and a heterogeneous group based on learning patterns.

Before the students were arranged into their groups guidelines and group rules were explained to students. They were informed of what was expected and the procedure for completing the work and handing it in. Students could earn and lose points on their assignments if they worked together as a team and the point system was written on the board. The first day of each phase students were instructed to come up with a team name to be used for the point system and group identification. Each day a new student was selected to be the team leader. The team leaders were in charge of writing their name on the board and then meeting in the front of the room to get directions, explaining the directions to the group, facilitating discussion, and handing in the completed work. If the lights flashed students were to stop talking and listen to direction or points would be deducted from the group. These directions were reviewed before each phase, but remained the same throughout the phases.

In Phase I, students' names were drawn from a basket and placed into one of four groups. Materials were collected, created, and utilized to support the social studies chapter which covered The Civil War (see appendix A for examples).

In Phase II, students' were assigned to homogeneous groups according to their learning pattern. The groups consisted of a sequential, precise, confluent, and a technical group. Materials were collected, created, and utilized to support the social studies

chapter which covered the Reconstruction period after The Civil War (see appendix A for examples).

In Phase III, students were assigned to heterogeneous groups according to their learning pattern. Materials were collected, created, and utilized to support the social studies chapter, which covered Immigration to the United States (see appendix A for examples).

In each phase students were expected to work cooperatively in their group to complete work. All students had to do the work on their own paper, but the group leader was in charge of transferring the information to a paper to be handed in and graded. All students were individually held accountable for the information covered in the cooperative learning groups which was evaluated through a quiz and a test.

Another important factor considered throughout the cooperative learning group work periods was the ability of the students to cooperate, get along with all group members, finish the work in a timely matter, and listen to directions.

At the conclusion of each cooperative learning phase class-work along with individual quiz and test grades were taken into account to determine the degree of success that each group had. Moreover, the ability of students to work together throughout each phase was analyzed and rated (see appendix B).

Procedure Schedule

Phase 1 (week 1)- Students were given the Learning Combination Inventory and their learning pattern was determined.

Phase 2 (10-day period)- Students worked in randomly assigned cooperative learning groups. Their interactions were observed and recorded (see appendix B). Group work was analyzed for strengths and weaknesses. During the ten days students completed daily in-class group work such as reading comprehension questions, interpreting graphs, charts, poetry, and songs. Students took a quiz on the key words or concepts covered throughout the ten days and a test at the end of the ten days (see appendix A for examples).

Phase 3 (10-day period)- Students were assigned to work in homogeneous cooperative learning groups in which they worked with students who had the same or similar learning patterns. Their interactions were observed and recorded (see appendix B). Group work was analyzed for strengths and weaknesses. During the ten days students completed daily in-class group work such as reading comprehension questions, interpreting graphs, charts, poetry, and songs. Students took quiz a on the key words or concepts covered throughout the ten days and a test at the end of the ten days.

Phase 4 (10-day period)- Students worked in heterogeneous cooperative learning groups in which they worked with student with different learning patterns. Their interactions were observed and recorded (see appendix B). Group work was analyzed for strengths and weaknesses. During the ten days students completed daily in-class group work such as reading comprehension questions, interpreting graphs, charts, poetry, and songs. Students took a quiz on the key words or concepts covered throughout the ten days and a test at the end of the ten days (see appendix A for examples).

Phase 5- Data was analyzed and interpreted. Students' individual grades were analyzed as well as group grades. An average class grade for each assignment and quiz was

calculated and the average grades were compared in order to determine the overall class success in each group. From this conclusions were drawn in order to determine if there was evidence to support the hypotheses that grouping students heterogeneously into cooperative learning groups by learning patterns is more beneficial than grouping students randomly or homogeneously by leaning patterns.

Phase 6- Students were educated on the different learning styles through the *Let Me Learn Process.*

Description of Instruments

In order to implement this study several types of materials or instruments had to be utilized. First, students learning patterns had to be determined using *The Learning Combination Inventory* and *The Learning Combination Inventory Manual*. In addition, materials related to the lesson were needed for group work. Quizzes and tests were needed in order to determine whether students individually demonstrated mastery of the important skills and concepts covered in the cooperative learning groups (see appendix A for examples). Finally, a journal to record students' interaction during group work was used to rate group work and record group behavior (see appendix B).

The Learning Combination Inventory was the main resource required to conduct this study. "*The Learning Combination Inventory* is an instrument developed to capture the interactive learning patterns of a student through self-report and the written voice of the learner" (Johnston, *Learning Combination Inventory* Users' Manual p. 5). It consists of 28 questions and three short answer questions. *The Learning Combination Inventory*

Manual must also be used in order to interpret and understand the scores and further understand the learning patterns.

The cooperative learning assignment materials consisted of five graded assignments, which were determined by the topic of study. The assignments ranged from reading comprehension questions, interpreting charts, graphs, poetry, and/ or songs. In addition to the group work material there was a vocabulary and key word quiz and a test after each phase (see appendix A for examples).

A journal was necessary to record information regarding each group (see appendix B). Students' ability to get along within the group must be recorded along with their ability to share the work and cooperate. Furthermore, each day a new group leader was determined and recorded.

Chapter Four

Analysis of the Findings

Introduction

Cooperative learning can enhance academic achievement among all students. Allowing students to work in small groups encourages them to teach each other and be actively involved in their learning experience (Cook, Forrestal, & Reid, 1990). However, many educators are unsure as to the most beneficial strategy for creating cooperative learning groups (Dumas, 2002).

Grouping students heterogeneously based on learning patterns maximizes and balances the learning strengths that each team member brings to the group (Pearle, 2002). The purpose of this study was to determine whether fourth grade students working in heterogeneous groups based on learning patterns would be more successful than fourth grade students working in homogeneous groups based on learning patterns and randomly created groups. In order to evaluate the success of the cooperative learning experiences, an average class grade was calculated for weekly group work. Additionally, a class average was calculated on a quiz and a test covering material discussed during each cooperative learning experience. This study focused on the following hypotheses:

- Fourth grade students working in heterogeneous learning groups according to their learning pattern will achieve significantly higher group grades then fourth grade students working in random groups and homogeneous groups based on learning patterns.

- Fourth grade students will achieve significantly higher individual grades on a quiz and a test covering material discussed during heterogeneous cooperative learning groups according to their learning pattern then fourth grade students working in random groups and homogeneous groups based on learning patterns.
- Fourth grade student behavior will improve during heterogeneous cooperative learning groups.
- Fourth grade students will cooperate with each other and all students will contribute and be active during heterogeneous group work more so then fourth grade students working in random groups and homogeneous groups based on learning patterns.

Results

An analysis of the grades and observations made by the teacher-researcher reveals an overall improvement in grades and cooperation among the group members during the heterogeneous cooperative learning group experience. Average group grades were calculated and compared for the random groups, the homogeneous groups based on learning pattern and the heterogeneous groups based on learning pattern. Although, the heterogeneous cooperative learning groups' average grades were higher they were not always statistically significant. In order for the finding to be considered statistically significant the significance level must be equal to or less then .05.

In order to determine whether grouping students heterogeneously by learning pattern would have a positive effect on the success of in-class group work the statistical significance was calculated. The class average for five in-class group assignments for

heterogeneous groups based on learning pattern was 94.65. The class average for five in-class group assignments for homogeneous groups based on learning pattern was 81.7 and 91.5 for randomly assigned groups. Although the heterogeneous groups achieved a higher average for in-class group work, it was only statistically significant when comparing the homogeneous and heterogeneous groups with .006 significance.

In order to determine whether grouping students heterogeneously by learning pattern would have a positive effect on the success of individual student quiz scores, the statistical significance was calculated. Students took a quiz covering material discussed during their cooperative learning experience. The class average was calculated and compared following each experience. The class quiz average for material covered during heterogeneous groups was 88.95. The class average for material covered during homogeneous groups was 69.63 and the quiz average for material covered during random groups was 88.42. Although the heterogeneous class quiz average was higher, it was only statistically significant when comparing the homogeneous and heterogeneous groups with .012 significance.

In order to determine whether grouping students heterogeneously by learning pattern would have a positive effect on the success of individual student test scores, the statistical significance was calculated. Students took a test covering material discussed during their cooperative learning experience. The class average was calculated and compared following each experience. The class test average for material covered during heterogeneous groups was 88.21. The class average for material covered during homogeneous groups was 82.74 and the test average for material covered during random

groups was 82.68. Although the heterogeneous class test average covering material discussed during heterogeneous groups was higher, it is not statistically significant.

Lastly, the hypothesis of whether grouping students heterogeneously by learning pattern would have a positive effect on students ability to cooperate and work well in a group was evaluated by the teacher-researcher. Groups were given a daily score of 1-10 based on their ability to work together in a group and finish their work. A point system was established for the groups and posted on the board. Throughout the group work experiences points could be added to individual groups or taken away. If arguments were observed 1-2 points were deducted. If the in-class group work was not finished by the end of the time allotted 1-2 points were deducted. If group members were being excluded from the conversation or ignored a point was deducted. However, groups were also able to earn points by making sure everyone was involved or by finishing ahead of schedule without any mistakes. Points were also added if the teacher-researcher observed that students were working well with each other in order to ensure all group members understood the material. The daily score was recorded for each group along with explanations for the addition or subtraction of points. Feedback was also given to groups on the graded assignments, which were handed back during the following group meeting. Although the grades for the heterogeneous grouping showed that the heterogeneous groups achieved higher grades, the group work that was observed during the heterogeneous cooperative learning group experience exemplified the most benefits to grouping students heterogeneously by learning pattern. All the heterogeneous groups worked extremely well together and earned the most points for cooperation and ability to get along with their fellow group members. During the cooperative learning experience

the random groups as a class earned a total of 150 points. The homogeneous groups as a class earned a total of 97 points. Finally the heterogeneous learning groups as a class earned a total of 212 points.

Table 1, 2, and 3 show group grades and individual student grades on a quiz and test during each cooperative learning experience. Table 1 shows the grades for the random cooperative learning experience. Table 2 shows the grades for the homogeneous cooperative learning experience. Table 3 shows the grades for the heterogeneous cooperative learning experience. The average for each group is also calculated.

table 1

Random Group Grades and Individual Student Grades

Group Grades		Student Quiz Grades	Student Test Grades
	73	70	78
	100	100	95
	90	100	93
	87	70	63
	89	100	98
	98	70	68
	80	80	85
	83	40	68
	75	100	80
	100	100	96
	100	100	77
	87	100	96
	98	60	67
	100	100	98
	100	100	92
	96	90	93
	97	100	84
	83	100	82
	97	100	58
	89		
Average	91.50	88.42	82.68

table 2

Homogeneous Group Grades and Individual Student Grades

Group Grades		Student Quiz Grades	Student Test Grades
	30	100	99
	80	64	84
	60	43	63
	85	64	98
	80	57	72
	57	79	75
	92	50	94
	90	50	80
	85	86	82
	83	93	84
	86	71	90
	100	100	90
	100	93	85
	95	86	58
	90	86	100
	71	79	85
	100	36	66
	80	29	71
	95	57	96
	75		
Average	81.7	69.63	82.74

table 3

Heterogeneous Group Grades and Individual Student Grades

Group Grades	Student Quiz Grades	Student Test Grades
80	100	94
99	100	99
100	100	85
100	100	99
90	80	92
99	100	98
100	100	100

	55	100	83
	100	60	76
	100	70	93
	100	100	90
	90	100	100
	100	100	98
	100	100	90
	100	70	64
	90	80	68
	100	30	76
	100	100	73
	90	100	98
	100		
Average	94.65	88.95	88.21

Table 4 and 5 consolidate and calculate the averages in order to find the statistical significance of grouping students by learning patterns into cooperative learning groups.

table 4

Case Processing Summary

Group Grades

	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
class-work * group	60	100.0%	0	.0%	60	100.0%
quiz * group	57	95.0%	3	5.0%	60	100.0%
test score * group	57	95.0%	3	5.0%	60	100.0%

table 5

Group Averages

Group		Class work	Quiz	Test score
Random	Mean	91.20	88.42	82.68
	N	20	19	19
	Std. Deviation	8.19	18.03	12.95
Homogeneous	Mean	81.70	69.63	82.74
	N	20	19	19
	Std. Deviation	17.12	21.81	12.52
Heterogeneous	Mean	94.65	88.95	88.21
	N	20	19	19
	Std. Deviation	10.89	19.41	11.64
Total	Mean	89.28	82.33	84.54
	N	60	57	57
	Std. Deviation	13.60	21.46	12.43

Table 6 calculates and determines the statistical significance of grouping students heterogeneously by learning pattern in comparison to grouping students homogeneously by learning pattern and randomly grouping students. Since the class averages had to be figured for three groups and for three assignments a Post Hoc, Multiple Comparison test was run. In order the comparison to be considered statistically significant the mean difference must be less then or equal to .05.

table 6

Multiple Comparisons

(Post Hoc Tests)

Dependent Variable	(I) group	(J) group	95% Confidence Interval		Mean Difference (I-J)	Std. Error	Sig.
			Lower Bound	Upper Bound			
class-work	random	homogeneous	-5.25E-02	19.65	9.80	3.99	.052
		heterogeneous	-13.00	6.70	-3.15	3.99	1.000
	homogeneous	random	-19.65	5.25E-02	-9.80	3.99	.052
		heterogeneous	-22.80	-3.10	-12.95*	3.99	.006
	heterogeneous	random	-6.70	13.00	3.15	3.99	1.000
		homogeneous	3.10	22.80	12.95*	3.99	.006
quiz	random	homogeneous	2.91	34.67	18.79*	6.43	.015
		heterogeneous	-16.41	15.36	-.53	6.43	1.000
	homogeneous	random	-34.67	-2.91	-18.79*	6.43	.015
		heterogeneous	-35.20	-3.43	-19.32*	6.43	.012
	heterogeneous	random	-15.36	16.41	.53	6.43	1.000
		homogeneous	3.43	35.20	19.32*	6.43	.012
test	random	homogeneous	-9.98	9.87	-5.26E-02	4.02	1.000
		heterogeneous	-15.45	4.40	-5.53	4.02	.524
	homogeneous	random	-9.87	9.98	5.26E-02	4.02	1.000
		heterogeneous	-15.40	4.45	-5.47	4.02	.536
	heterogeneous	random	-4.40	15.45	5.53	4.02	.524
		homogeneous	-4.45	15.40	5.47	4.02	.536

*. The mean difference is significant at the .05 level.

Groups were able to earn and lose points based on their ability to cooperate within their groups. The point system was posted on the board daily and groups knew exactly the behavior that would earn their group points or lose their group points. Students were expected to listen to each other, make sure all members were following along, listen to directions, and finish work in the time allotted. Table 7, "Comparing Group Work Cooperation" gives the total points earned by all four cooperative learning groups daily in each cooperative learning experience. By comparing the groups it is apparent that the heterogeneous cooperative learning groups were overall more successful in terms of working within their group. The teacher-researcher observed the behavior and ability of the groups to work effectively together to complete their work and include all group members. From the observations it was apparent that individual student behavior and group interaction was more effective and beneficial among all groups and all students working within the heterogeneous cooperative learning groups.

table 7

Comparing Group Cooperation

Groups	Day 1	Day 2	Day 3	Day 4	Day 5	Total points
Daily points earned by all groups						
Random	22	20	19	17	27	108
Homogeneous	15	12	18	20	24	89
Heterogeneous	25	27	33	22	28	135

Chapter Five

Summary, Conclusion, and Recommendations

Introduction

Cooperative learning can enhance academic achievement. Allowing students to work in small groups encourages them to teach each other and be actively involved in their learning experience (Cook, Forrestal, & Reid, 1990). Diversity within groups can be used as a resource. Intentionally grouping students by ability level has been a common practice among educators (Woolfolk, 2001). This study aimed to determine whether grouping students by learning patterns would have a positive effect on the success of group work, individual student grades, and the ability of students to cooperate within their assigned groups. Three cooperative learning groups were compared in order to determine the most successful grouping strategy. First, students were grouped randomly, then homogeneously by learning pattern, and lastly, heterogeneously by learning pattern. During each cooperative learning experience groups were expected to complete in-class group work. Students were then given a quiz and a test on the material covered during their cooperative learning groups. Moreover, students' ability to cooperate and complete the assignments was observed and recorded. Groups could earn or lose points based on their ability to work together and complete the assignments.

Summary of the Problem

Cooperative Learning Groups can be extremely beneficial for all students. However, the effects of learning in a group vary, depending on what happens in the group and who is in the group (Woolfolk, 2001). It can be difficult to determine how to group students into cooperative learning groups in order for all group members to benefit. The purpose of this study was to determine whether grouping students by learning patterns would improve cooperative learning activities and group and individual grades.

The research questions for this study were:

- Will intentional grouping of students according to their learning pattern increase student achievement during cooperative learning experiences?
- Will intentional grouping of students according to their learning pattern increase individual student achievement on material covered during cooperative learning groups?
- Will intentional grouping of students according to their learning pattern ensure that students are participating fully, equally, and appropriately in cooperative learning experiences?

Summary of the Hypotheses

Cooperative learning can enhance positive interdependence and individual accountability. The effects of this, however, depend on the implementation of cooperative learning (Slavin as sited in Dumas, 1998). One factor in implementing successful cooperative learning in the classroom is how students are grouped. There are

several ways that students can be organized into cooperative learning groups. This study focused on grouping students heterogeneously by learning pattern.

In particular this study focused on the following hypotheses:

- Fourth grade students working in heterogeneous learning groups according to their learning pattern will achieve significantly higher group grades then fourth grade students working in random groups and homogeneous groups based on learning patterns.
- Fourth grade students will achieve significantly higher individual grades on a quiz and a test covering material discussed during heterogeneous cooperative learning groups according to their learning pattern then fourth grade students working in random groups and homogeneous groups based on learning patterns.
- Fourth grade student behavior will improve during heterogeneous cooperative learning groups.
- Fourth grade students will cooperate with each other and all students will contribute and be active during heterogeneous group work more so then fourth grade students working in random groups and homogeneous groups based on learning patterns.

Summary of the Procedure

In order to determine what type of grouping was the most beneficial to the success of group work students were grouped three times. The teacher-researcher also kept a journal of observations of group interactions during the cooperative learning experiences.

In order to determine the most successful way to group students into cooperative learning groups the students first took the *Learning Combination Inventory (LCI)* to determine their learning pattern. Students were then grouped into cooperative learning groups and were required to complete a variety of assignments in social studies over the course of 2 weeks. First, they were grouped randomly. Next, they were grouped homogeneously by learning patterns as determined by their LCI. Lastly, the students were grouped heterogeneously by learning pattern.

In each group the students were required to complete daily group work, participate in a comprehension game or activity, and take one quiz and one test on the material covered during the group work. The grades were recorded for each individual student from each group and compared at end of the group work.

Additionally, groups earned or lost points according to their ability to cooperate and complete their group work in a specified amount of time. Students were informed as to the proper behavior for cooperative learning groups and the ways in which their group could earn or lose points. Each groups' points were then recorded and tallied at the end of the cooperative learning group experience. The teacher-researcher then added all the points up in order to compare the cooperative learning group point totals during each experience.

Summary of the Findings

The findings of this study indicate that grouping fourth grade students into cooperative learning groups heterogeneously by learning patterns were overall more successful then randomly created groups and homogeneous groups based on learning

patterns. The data indicates that students working in heterogeneous cooperative learning groups achieved a higher class average on in-class group assignments then the random and homogeneous groups based on learning pattern. However, the in-class group assignment average for group work is only statistically significant when comparing the homogeneous and heterogeneous groups based on learning pattern with .006 significance.

The data further indicates that the class quiz average for material covered during heterogeneous groups was higher then the classes quiz average for material covered during random and homogenous groups. However, the quiz average is only statistically significant when comparing the homogeneous and heterogeneous quiz average with .012 significance.

The data also indicates that the class test average for material covered during heterogeneous groups was higher then the classes test average for material covered during random and homogenous groups. However, the test average is not statistically significant when comparing the homogeneous and random test averages to the heterogeneous test average.

Finally, the teacher-researcher's observations reveal that student participation, involvement, and cooperation among group members during heterogeneous cooperative groups was significantly better in comparison to both homogenous and random cooperative groups. This conclusion is based on the total points earned by the groups during each cooperative learning experience. The total points eared by the random groups was 108. The total points earned by the heterogeneous groups was 89. Lastly, the total points earned by the heterogeneous groups was 135. Moreover, the overall

observations by the teacher-researcher indicate that the heterogeneous groups were more successful in terms individual student behavior and group interaction.

Conclusion

The implications of this study suggests that grouping students heterogeneously by learning pattern can contribute to slightly higher class averages. Moreover, this study suggests that grouping students heterogeneously by learning pattern can contribute to more cooperation among group members, improved student behavior in group work, and more complete work.

This study further implies that grouping students homogeneously by learning pattern is not beneficial for individual students' or group success. The averages for students working in homogenous cooperative learning groups were the lowest. Moreover, the group grades and individual quiz grades were statistically significant when comparing them to grades achieved by the heterogeneous groups. Furthermore, it was observed that students working in homogeneous groups based on learning pattern had the most difficulty using the time allotted for the assignment effectively. They had difficulty completing the work and were observed off task more so then the random and heterogeneous cooperative learning groups.

When comparing the random cooperative learning groups to the heterogeneous cooperative learning groups, the grades although higher for the heterogeneous groups, were not statistically significant. However, the observations by the teacher-researcher did indicate greater cooperation among group members working in heterogeneous groups.

Implications and Recommendations

Cooperative learning groups can be a valuable experience for all students. Extensive research has shown that cooperative learning boosts academic achievement. Organizing students into cooperative learning groups allows them to explore the topic of study with class members which aids in problem solving. Furthermore, students are given the opportunity to explain the material to each other, which can help in the retention of the information. Cooperative learning groups also provide an opportunity for students to communicate with their peers which can have a positive affect on the way they relate to others, and their peers.

This study supports the implication that the use of cooperative learning groups in the classroom can positively effect individual students comprehension of material. It further suggests that determining students learning patterns and grouping them heterogeneously based on their pattern can produce more effective and successful team and individual comprehension. However, grouping students homogeneously by learning pattern is not as effective and can negative effects on the cooperation and interaction among group members. In cooperative learning groups diversity is a positive factor, it allows all students to use their individual strengths with in the group. Therefore, grouping students heterogeneously by learning pattern allows all students to contribute, and brings balance to the group.

In order to increase the reliability of this studies' findings it is suggested that students work in cooperative learning groups for a longer period of time. Furthermore, it is suggested that students not be grouped homogeneously by learning pattern. Random cooperative learning groups should be compared with heterogeneous groups. The groups

ability to cooperate and effectively work together should be evaluated. Moreover, individual students comprehension of the material covered should be evaluated and compared.

Additionally, in order to increase the effectiveness of grouping students heterogeneously by learning pattern students should take the Learning Combination Inventory and have the results of their inventories explained to them. Students should be familiar with their strengths and weaknesses regarding their learning patterns. For purpose of this study students were not given the results of their inventories until the end of the cooperative learning group experiences in order to eliminate the likelihood of the halo effect taking place. However, when grouping students heterogeneously by learning patterns, informing the students on the diversity of the group, and what each members' strengths are may aid in student cooperation. When students are allowed to work in a diverse cooperative learning group according to learning pattern they are inclined to share their ideas, learn how others think and react to problems, and it may give them an opportunity to strengthen their learning patterns that they may avoid using.

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Appendix A

Examples of Lesson Plans and Materials

Standards	Objective	Activities	Materials	Assessment	Time Frame
6:4-3 6:4-4	Define vocabulary words from Ch. 9 NJ Adventure	Define voc. words using glossary	1. Vocabulary worksheet 2. Textbook, NJUSA, notebook	Grade on vocabulary quiz	1 day
6:3-1 6:3-2 6:3-3 6:3-4 6:4-4 6:4-3 6:4--4	List reasons for origins of slavery in America and the results thereof	1. Read and discuss pages 140-141 2. Answer questions in notebook from pages 140-141	1. Textbook 2. Questions p. 140- 141 3. worksheet	Grade on quiz	1 day
6:2-1 6:4-4 6:3-1 6:3-2	Discuss treatment of enslaved people in the United States and the results thereof as depicted in literature	1. Read and discuss "Fredrick Douglas" 2. Complete Crossword puzzle on Douglas	1. Poem Fredrick Douglass 2. Crossword Puzzle	Grade on crossword puzzle	1 day
6:2-1 6:3-1 6:3-2 6:4-3 6:4-4	Discuss treatment of enslaved people in the United States and the results thereof as depicted in literature	Read and discuss "Ship of Horrors" Complete crossword puzzle Complete questions on Ship of Horrors'	1. Worksheet "Ship of Horrors" 2. Crossword puzzle 3. Questions	Grade on questions	1 day
6:3-1 6:3-2 6:3-3 6:3-4	Identify the purpose of The Underground Railroad and how it worked	Read and discuss pages 142-143 Complete questions	Textbook Questions	Grade on questions	1 day

Standards	Objectives	Activities	Materials	Assessment	Time Frame
6:2-1 6:2-2 6:2-4	1. Interpret spiritual "Follow the 2. 2. Drinking Gourd" interpret literature "Harriet Tubman"	1. Listen to Follow the Drinking Gourd on tape; sing along 2. Read and discuss Brave Conductor 3. Answer questions on	1. Tape 2. Lyrics 3. "Brave Conductor" 4. Questions	Grade on questions	1 day
6:2-1 6:2-2 6:2-4 6:3-1 6:3-3 6:4-3&4	1. Read and discuss excerpts from Uncle Tom's Cabin 2. Interpret Underground Railroad Code	1. Pass out Uncle Tom's Cabin - read and discuss 2. Pass out Code- complete independently 3. Questions on reading	1. Uncle Tom's Cabin Except 2. Railroad Code 3. Questions on UTC	Grade on questions	1 day
6:3-1 6:3-2 6:3-3	1. List 3 causes of The Civil War	1.Read and discuss 144-146 2. Answer questions	1. Text 2. Questions	Grade on questions	1 day
6:2-1 6:2-3 6:7-1	1. Interpret Civil War Music 2. Interpret graphs	4. Listen to Battle Cry of Freedom on tape 5. Graphs- Pies help us predict 6. Review for quiz	6. Tape 7. Worksheet on graphs	Grade on quiz	1 day
6:1-5 6:3-1 6:3-2 6:3-3 6:3-4	1. List accomplishments of African Americans during Civil War 2. Identify importance of Emancipation Proclamation	1. Take quiz 2. Read and discuss text 146-148 3. Complete questions independently	3. Quiz 4. Text 5. Questions	Grade on quiz Grade on questions	1 day
6:7-1 6:7-5 6:8-3 &5	1. Develop skills in interpreting maps and graphs	1 Use atlas pg. 26-27 to complete worksheet 17 2 Crossword puzzle	1. Atlas 2. Crossword puzzle	Grade on puzzle	1 day

Kelly Hamlet **Grade 4**

Social Studies **Day 1**

Core Content Standards: Social Studies 6.4

A. Objectives:

1. Students will define vocabulary words for Social Studies Chapter 9, The Civil War.

B. Introduction:

1. Discuss the war that was just studied (the Revolutionary War) and tell students that we will now begin to study the next big war in the colonies.
2. Have students brainstorm what they already know- Does anyone know the next war that occurred in the colonies?
3. Does anyone have any idea of why the Civil War was fought?
4. Discuss slavery a little with students.

C. Development:

1. Pass out new social studies packet
2. Have students look up all vocabulary words
3. Play Civil War music as they work
4. Did you know that out of all the wars fought in this country more men died in the Civil War then any other war
5. Tell students the story of the beginning of the war (Bull Run Battle) and the end of the war surrender of General Lee
6. Tell students about President Lincoln's dream about his death 2 weeks before he was assassinated.

D. Summary

1. Go over all vocabulary words

Kelly Hamlet **Grade 4**

Social Studies **Day 2**

Core Content Standards: Social Studies 6.3: 1-4,

6.4: 3-4

A. Objectives

1. Working in cooperative learning groups students will list reasons for origins of slavery in America and the results thereof

B. Introduction:

1. We talked a little bit yesterday about slavery in the colonies lets brainstorm some reasons why people had slaves.
2. Make a list on the board

C. Development:

1. Read pages 140-141 in text NJ USA
2. Discuss pages
3. Answer questions in packet from pages 140-141 independently

D. Summary:

1. Go over answers and discuss

Kelly Hamlet **Grade 4**

Social Studies **Day 3**

Core Content Standards: Social Studies 6.2: 1

6.3: 1-2

6.4: 3-4

A. Objectives

1. In cooperative learning groups students will discuss treatment of enslaved people in the United States and the results thereof as depicted in literature
2. In cooperative learning groups students will read poem Fredrick Douglas and complete crossword puzzle worksheet.

B. Introduction:

1. Review the treatment of slaves
2. Talk a little about Frederick Douglas

C. Development:

1. Read and Discuss poem "Frederick Douglas"
2. Start crossword puzzle with students
3. Students will finish crossword puzzle independently

D. Summary:

1. Go over answers
2. Discuss
3. Answer questions

Kelly Hamlet **Grade 4**

Social Studies **Day 4**

Core Content Standards: Social Studies 6.2: 1

6.3: 1-2

6.4: 3-4

A. Objectives:

1. In cooperative learning groups students will discuss treatment of enslaved people in the United States and the results thereof as depicted in literature.
2. In cooperative learning groups students will complete a crossword puzzle pertaining to questions about the "Ship of Horrors"

B. Introduction:

1. Review of treatment of enslaved people in the US.
2. Discuss with students how slaves were brought over

C. Development:

1. Read and Discuss "Ship of Horrors"
2. Students may work independently or in a group to complete crossword puzzle pertaining to the reading
3. Answer questions regarding "Ship of Horrors"

D. Summary:

1. Go over answers to crossword puzzle and "Ship of Horrors"
2. Short summarizing discussion with students

Kelly Hamlet **Grade 4**

Social Studies **Day 5**

Core Content Standards: Social Studies 6.2: 1

6.3: 1-2

6.4: 3-4

A. Objectives:

1. In cooperative learning groups students will identify the purpose of The Underground Railroad and how it worked.
2. In cooperative learning groups students will read and discuss pages 142-143 and answer questions pertaining to the reading.

B. Introductions:

1. Discuss Underground Railroad
2. Share newspaper article about the underground railroad

C. Development:

1. Read and discuss pages 142-143 in text NJ Adventure
2. Students will discuss and answer questions in their packet regarding reading
3. Students will work in groups or individually

D. Summary:

1. Go over questions
2. Discuss questions
3. Short review or reading
4. Answer questions

Kelly Hamlet **Grade 4**

Social Studies **Day 6**

Core Content Standards: Social Studies 6.2: 1-4

A. Objective:

1. Students will listen and follow along with "Follow the Drinking Gourd" (on tape)
2. Students will sing along with the tape (lyrics on worksheet 105 & 106)
3. In cooperative learning groups students will read and discuss the Brave conductor and answer questions pertaining to the reading.

B. Introduction:

1. Music has played an important part in our history
2. Ask questions to name a few songs that are related to American history
3. Discuss importance of music and how it is a form of self expression and even had a more important message during the times of slavery and the underground railroad
4. Have students brainstorm and discuss how music could be used by the slaves

C. Development:

1. Read "Follow the Drinking Gourd" and discuss
2. Play "Follow the Drinking Gourd" on tape
3. Discuss
4. Sing along with tape
5. Read and Discuss "The Brave Conductor"
6. Answer questions pertaining to "The Brave Conductor" (in groups)

D. Summary:

1. Go over answers
2. Discuss
3. Answer questions
4. Quick summary

Examples of Materials Used in Cooperative Learning Groups

Name _____ Social Studies Ch. 9
Date _____ pages 142-143

The Underground Railroad

Copy the following questions into your notebook and answer them.

1. The secret system that abolitionists set up to help escaping slaves to freedom was called the _____ _____. (2 words)

2. The stations on the Underground Railroad were the homes, barns, or other buildings where slaves could _____.

3. A _____ hanging on a clothesline let the conductors know that it was _____ to bring the 'passengers' (or escaping slaves) into the building.

4. _____ _____, a conductor on the Underground Railroad, led over 300 slaves to freedom.

5. A runaway slave, if captured, had to be _____ to the plantation he/she ran away from.

6. Dr. James Still studied plants and herbs and learned how to make _____.

Inference Question

7. Why would escaped slaves travel all the way to Canada instead of just staying in the Northern States? _____
_____
_____
_____

Name _____ Social Studies Ch. 9
Date _____ pages 144-146

A Nation Divided and The Civil War

Copy the following questions into your notebook and answer them.

1. People in the South thought that the _____ should have more rights than the national government.

2. Many people in the _____ thought it was wrong to own slaves.

3. Many Southerners said that slavery was important to their _____ and slaves were needed as fieldworkers on plantations.

4. The Civil War lasted from 1861 to _____. (You can use the timeline on p. 139 to answer this!

5. The city of _____ made cannons rifles, and ships for the Civil War.

(Use the caption under the picture on p. 145 to answer questions 6 & 7).

6. The Northern States were called the _____.

7. The Southern states were called the _____.

8. The President of the US during the Civil War was _____ _____.

Name_____ Social Studies Ch. 9
Date _____ pages 146-148

African Americans in the Union Army

Copy the following questions into your notebook and answer them.

1. African Americans fought for the _____ (North/ South) during the Civil War.

2. _____ _____ was the first African American to be awarded the Congressional Medal of Honor.

3. President Lincoln issued the _____ _____ in which he freed all of the slaves.

4. The North was better able to fight a long war because their _____ could make things that they needed.

- Social Studies Chapter 9 Vocabulary Quiz

Name:_____ Class:_____ Date:_____

Fill in the blank with the letter of the word that best completes the sentence.

1. A large group of soldiers is called a _____ .
2. A place where needy, sick, or mentally ill people can receive care is called a(n) _____ .
3. A large farm usually located in the South was called a(n) _____ .
4. To free someone is to _____ him/her .
5. A sale in which items are sold to the highest bidder is a(n) _____ .
6. Freedom or release from slavery is called _____ .
7. The person in charge; or an owner was called a(n) _____ .
8. To force or select people for military service is to _____ .
9. An opinion made about someone before all of the facts are known; a judgement about someone because of the color of their skin is _____ .
10. To change something in order to make it better is to _____ .
11. Rights that belong to every citizen are _____ .
12. People who did not believe in slavery and did everything they could to stop it were called _____ .
13. A group of workers who get together to bring about change is called a _____ .
14. A change made to the US Constitution is an _____ .

a. brigade
b. reform
c. master
d. civil rights
e. labor union
f. draft
g. emancipation
h. prejudice
i. ammendment
j. plantation
k. abolitionists
l. liberate
m. asylum
n. auction

Name _____ Social Studies
Date _____ Test

Part A Multiple Choice
Circle the letter of the correct answer.

1. Slaves were brought to the US from A) Asia B) Africa C) Australia D) Europe E) NG

2. The stations on the Underground Railroad were the homes, barns, or other buildings where _____ could hide. A) soldiers B) abolitionists C) Quakers D) slaves E) NG

3. People in the _____ thought that the states should have more rights than the national government. A) North B) East C) South D) West E) NG

4. The city of ____ made cannons, rifles, and ships for the Civil War. A) Camden B) Philadelphia C) Paterson D) Deptford E) NG

5. Many Southerners said that slavery was important to their _____ and were needed to work on plantations. A) civil rights B) industries C) factories D) economy E) NG

6. A quilt hanging on a clothesline let the conductors of the Underground Railroad know that it was _____ to bring the escaped slaves inside. A) unsafe B) a trap C) safe D) not a station on the Underground Railroad

7. If an escaped slave was found in the North, he/she had to be A) set free B) sent to Canada to be free C) taught to read and write D) returned to the place in the south where he/she escaped from E) trained as a conductor on the Underground Railroad

8. This document freed all of the slaves in January 1863. A) Declaration of Independence B) Emancipation Proclamation C) Constitution D) Amendment 15 E) NG

9. The war fought between the Northern and Southern states that lasted from 1861 to 1865 was called the A) Civil War B) Revolutionary War C) War for Independence D) Spanish-American War E) NG

10. This organization, which was started after the Civil War, tried to solve the problems of the unemployed, sick, and homeless people. A) Ku Klux Klan B) Underground Railroad C) Labor Unions D) Freedman's Bureau E) NG

11. African- Americans fought for the ___ during the war. A) South B) North C) Territories

12. All of the following are reasons that the North won the war *EXCEPT* for one. Circle the letter of the one that is *NOT* a reason. A) The North had the most wealth B) The North had the most factories C) The North had the most slaves D) The North had the most population

Part B Who Am I?
Choose the correct name to go in each blank. (Hint: Not all of the names will be used).

Abraham Lincoln	Dorothea Dix	Clara Barton
Philip Kearney	Harriet Tubman	Dr. James Still
The Union	The Confederacy	Abigail Goodwin

13. I was a conductor on the Underground Railroad.
_____

14. I worked to reform jails and asylums in NJ.
_____

15. I was president of the US during the war between the northern and southern states.
_____

16. I studied plants and herbs and made medicine.
_____

17. The Northern States were called this.

_____

18. The Southern states were called this.

_____

19. I founded the American Red Cross.

_____

Part C (Open Ended Questions/Essay)
Answer the following questions in complete sentences.

20. Why weren't slaves allowed to learn to read? _____

_____

_____

21. The 14th and 15th Amendments to the Constitution guaranteed African Americans two things. Name one of them.

_____

_____

_____

_____

22. Why would escaped slaves choose to travel all the way to Canada and not stop in the Northern states? _____

_____

_____

_____

_____

Part D Skills Section
In order to complete this section you will need to use pages 54 and 55 of The Atlas of Our Country.

23. What is the capital of Idaho? _____

24. What National Park is located Northeast of Medford, Oregon? _____

25. What river is Salem, Oregon, located on?

_____

Circle the letter of the correct answer below.

26. To go from Great Falls, Montana, to Havre, Montana, you should travel in what direction?
A) southeast B) southwest C) northeast D) northwest E) NG

27. The approximate distance from Buffalo, Wyoming, to Miles City, Montana is A) 75 miles B) 100 miles C) 125 miles D) 150 miles

28. Yellowstone N.P. (National Park) is located in A) Oregon B) Wyoming C) Washington D) Nevada

Part F Extra Credit (Optional) Each question is worth 1 point.

29. What is the approximate distance from Caldwell, Idaho, to Boise, Idaho? _____

30. Seattle, Washington, is located on what body of water?

_____

31. What was the purpose of the song *Follow the Drinking Gourd?* _____

_____

_____

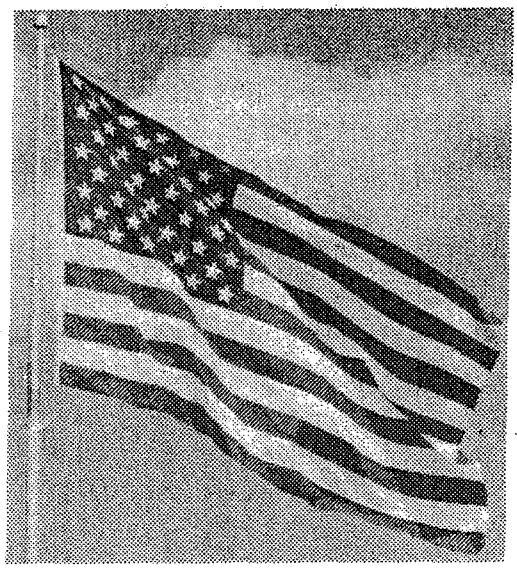
_____

SYMBOLS OF THE NATION

Why do you think symbols are important? If you live in California or in New York, in Texas or in Minnesota, you may have very different ways of life. But our country's symbols remind us that the 50 states are united as one nation. What does each symbol stand for?

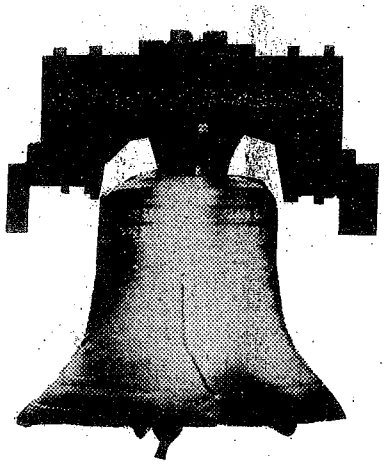
Statue of Liberty

The Statue of Liberty in New York City's harbor has been a symbol of hope and opportunity for the millions of immigrants who saw "Miss Liberty" from their boats as they arrived in the United States. Completed in 1886, it remains a symbol of freedom and liberty for people everywhere.



United States Flag

The 13 stripes represent the 13 original states. The 50 stars represent each state today. As our country has grown, our flag has changed. At least ten different flags have represented our country since the American Revolution. The present flag has been our national symbol since 1960, when Hawaii became the fiftieth state. Every state has its own flag as well. What does your state flag look like?



Liberty Bell

Like the Statue of Liberty, the Liberty Bell is a symbol of freedom. It hung in Independence Hall in Philadelphia where the Declaration of Independence and the United States Constitution were written. It rang on July 4, 1776, to celebrate our first Independence Day.

Great Seal of the United States

Does this seal look familiar? You see it every time you look at a $1 bill. Designed over 200 years ago, the Great Seal of the United States is also found on many documents signed by the President. The American bald eagle is in the center. In one claw is an olive branch, symbolizing peace. In the other are 13 arrows, representing the strength of the 13 original states. The words *E Pluribus Unum* are Latin for "out of many, one." Out of many people, and many states, one united country is formed.

The bald eagle is our national symbol, chosen to represent freedom and courage.

But did you know:

- Benjamin Franklin argued that the turkey should be our national symbol. He thought the eagle was "a bird of bad moral character."
- Bald eagles are not bald! They have white feathers on their heads, which gives them a bald appearance.
- The nests of bald eagles weigh as much as a pick-up truck!

Where can you find the bald eagle? (Hint: He's on the Great Seal of the United States)

Name _____ Social Studies
Date _____ Skills Work

Use worksheets 22, 23, and 24 to answer the following questions in your notebooks.

1. The 13 stripes on our flag stand for the 13 original _____ and the 50 _____ represent each state in our country today.

2. The Liberty Bell is a symbol of _____ and first rang on July, 4, 1776 to celebrate our first _____ Day.

3. On the Great Seal the eagle holds an _____ branch in one claw symbolizing peace. In the other claw are _____ arrows representing the 13 original states.

4. The words *E Pluribus Unum* are Latin for 'out of many, one' which means out of many states one _____ is formed. (The US!!)

5. The bird which is our national symbol is the _____ _____ which stands for freedom and courage.

Citizenship Quiz

1. What is the original date of Independence Day?	
a) June 4th	O
b) August 14th	O
c) July 13th	O
d.) May 3rd	O
2. What are the colors of our flag?	
a) Red, Yellow, and Blue	O
b) Blue, Red, and Green	O
c) Red, White, and Blue	O
d) Blue, Orange, and White	O
3. How many stars are there in our flag?	
a) 24	O
b) 50	O
c) 100	O
d) 75	O
4. What country did we fight during the Revolutionary War?	
a) French	O
b) Russia	O
c) England	O
d) Iraq	O
5. For how long do we elect the President?	
a) Five years	O
b) Ten years	O
c) Four years	O
d) Six years	O
6. What is the head executive of a state government called?	
a) President	O
b) Governor	O
c) Mayor	O
d) Counselor	O
7. Which President is called the "Father of our country"?	
a) George Washington	O
b) Bill Clinton	O
c) Martin Luther King, Jr.	O
d) Abraham Lincoln	O

8. What kind of government does the United States have?

a) Democratic	O
b) Communist	O
c) Republican	O
	O

9. How many states are there in the United States today?

a) Thirteen (13)	O
b) Fifty (50)	O
c) Hundred (100)	O
d) Three (3)	O

10.What are the 13 original states of the U.S. called?

a) Colonies	O
b) States	O
c) Counties	O
d) None of the above	O

Appendix B

Cooperative Learning Group Observations and Point Journal

Cooperative Learning Groups

Random Groups #1

Observations and Points

Groups	Day 1	Day 2	Day 3	Day 4	Day 5
Group 1	Group work average. Some arguing with Julius	Average	Talking during directions	Not working as a team	Best day for this group.
Points	3	5	3	0	7
Group 2	Not working together Arguments Telling on each other	Not working together Arguments Telling on each other	Not working together Arguments Telling on each other	Little better today. Still not working together	Horrible! Didn't finish work, talking, telling on each other. Not paying attention to directions
Points	1	1	1	3	0
Group 3	Great work	Great work	Off topic Too talkative	Good work	Good work
Points	8	9	6	8	8
Group 4	Best group work Great team work!	Good Job	Great work Really worked together	Good job, but a little off topic at times	Awesome work!!!!!
Points	10	8	9	7	10
Total Points Earned	22	23	20	18	25

Total points for week= 108

Cooperative Learning Groups

Homogeneous Groups #2

Observations and Points

Groups	Day 1	Day 2	Day 3	Day 4	Day 5
Group 1	OK 2 members playing with toys during instruction	Arguing Not working together	Talking during directions Telling on each other	Not working as a team	HORRIBLE! Didn't finish work! Worse group
Points	4	-2	0	0	-1
Group 2	Not working together Arguments Telling on each other	Great Day	Horrible! Didn't finish work, talking, telling on each other.	Not working together 2 members arguing	OK -worked together Completed work Worked together better then any other day
Points	3	5	0	0	6
Group 3	Great work!	Great work	Off day Too much talking	Good work	Good work
Points	10	9	3	7	7
Group 4	Telling on each other Not getting along! But work complete and done 1st	Good Job Big improvement	Great work Really worked together	Good job, but a little off topic at times	Great work
Points	5	7	10	7	9
Total Points Earned	22	19	13	14	21

Total points for week= 89

Cooperative Learning Groups

Heterogeneous Groups #3

Observations and Points

Groups	Day 1	Day 2	Day 3	Day 4	Day 5
Group 1	Great group work Listened very well	Average	Average	Awesome work Finished very fast	Great team work Team really helps each other
Points	7	5	5	8	8
Group 2	Great work Really got into work Helped each other	OK Had a little problem at first but great improvement	OK behavior Did excellent work	Great Job Worked hard	Good job Observed team members making sure everyone had information for notes
Points	8	6	6	7	7
Group 3	Great work	Great work	Good work	Good work	Good work
Points	6	9	7	7	8
Group 4	Best group work Great team work!	Bad day for group, but finished work really fast	Great work Really worked together	Good job, but a little off topic at times	Awesome work!!!!!
Points	6	4	7	7	7
Total Points Earned	27	24	25	29	30

Total points for week= 135

Group Work Totals

Groups	Day 1	Day 2	Day 3	Day 4	Day 5	Total points
Daily points earned by all groups						
Random	22	20	19	17	27	108
Homogeneous	15	12	18	20	24	89
Heterogeneous	25	27	33	22	28	135

VITA

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