Explicit/Implicit Training of Cooperative Learning

with Junior Elementary Students

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Submitted in partial fulfillment

of the requirements for the degree of

Master of Education

Faculty of Education, Brock University

St. Catharines, Ontario

© August, 1997
Abstract

This experimental study examined the effects of cooperative learning and explicit/implicit instruction on student achievement and attitudes toward working in cooperative groups. Specifically, fourth- and fifth-grade students (n=48) were randomly assigned to two conditions: cooperative learning with explicit instruction and cooperative learning with implicit instruction.

All participants were given initial training either explicitly or implicitly in cooperative learning procedures via 10 one-hour sessions. Following the instruction period, all students participated in completing a group project related to a famous artists unit. It was hypothesized that the explicit instruction training would enhance students' scores on the famous artists test and the group projects, as well as improve students' attitudes toward cooperative learning.

Although the explicit training group did not achieve significantly higher scores on the famous artists test, significant differences were found in group project results between the explicit and implicit groups. The explicit group also exhibited more favourable and positive attitudes toward cooperative learning. The findings of this study demonstrate that combining cooperative learning with explicit instruction is an effective classroom strategy and a useful practice for presenting and learning new information, as well as working in groups with success.
Acknowledgments

First and foremost, this thesis could not have been completed without the invaluable guidance and continuous support of my thesis advisor, Dr. Vera Woloshyn. My sincere thanks.

I would like to thank the staff, students and parents from Assumption School who participated in this study.

Finally, I would like to thank my husband, Dan and three children, Jade, Jazmine and Garrett for their patience, encouragement and never-ending support.
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CHAPTER ONE: INTRODUCTION

Background of the Problem

Cooperative values and practices have an impact on virtually all aspects of our lives. In work, leisure, family and government, cooperating with others is basic to building and maintaining stable relationships, to career success, and to community integrity. It underlies important social values and beliefs, and is the foundation of friendships and many of the contributions people make to society (Adams, Carlson & Hamm, 1990).

To stay competitive in the world market, power is frequently shared and collaboration encouraged. Business and industry leaders are rediscovering a basic truth that may have escaped some educators for the past 30 years. They have rediscovered that long-term, persistent, committed effort to achieve is powered by caring and committed personal relationships. Many successful chief executives attempt to create a "family" within which members care deeply about each other and share a mutual vision (Johnson & Johnson, 1989).

Perhaps it is time for educators to discover the same truth. Working together to get the job done can have profound effects on students and staff members. The research pertaining to relationships among cooperative, competitive and individualistic efforts and instructional outcomes is staggering. During the past 90 years, over 500 studies have been conducted by a wide variety of researchers with respect to this relationship (Johnson & Johnson, 1989). Johnson and Johnson (1989) found the productivity of groups to surpass productivity of individuals under
most conditions. As well, cooperative learning was found to be more effective than competitive and individualistic learning in promoting achievement and positive interpersonal relationships. Ironically, the research indicates that we know far more about the effectiveness of cooperative learning as a teaching and learning style than we know about any other facet of education. Yet, classroom practice is customarily oriented toward individualistic and competitive learning and schools tend to be dominated by a competitive and/or individualistic structure. Hence, cooperative learning does not seem to be utilized at an optimal level (Johnson & Johnson, 1989). Despite the need for cooperative attitudes and skills, competitive games and sports, report cards, honour roles and after-school activities tend to emphasize students' abilities at the expense of cooperative effort (Adams et al., 1990).

The educational system can adapt to the changing realities of society by redirecting some of the classroom teaching time that incorporates the traditional educational models and the status quo of teaching. The focus needs to be on the implementation of cooperative learning as a means to fostering and fulfilling the development of effective interpersonal skills and valuing the contributions of others (Adams et al., 1990). It is time for the discrepancy to be reduced between what research indicates is effective in teaching and what teachers actually do. In order to do so, educators must understand the basic elements of structuring situations cooperatively, the variety of ways cooperative learning may be implemented in the classroom and the role of the teacher in this process (Johnson & Johnson, 1989). Awareness of self, the ability to empathize, the ability to assume leadership, and the commitment to carry out one's responsibilities as a member of a group are all skills
and attitudes that can be acquired in the process of learning to cooperate. They are also basic to the goals of education and are stated in provincial curriculum guides across Canada (Adams et al., 1990).

The clearest and most direct challenge to traditional, competitive and individualistic teaching is the adoption of cooperative learning. Moreover, it is necessary for each student to develop the capacity to be either cooperative or competitive as the situation demands. In order for children to choose to be cooperative, educators must take the time to teach them how. Taking the time to teach students how to cooperate is critical to the successful implementation of this teaching style.

What may be needed to ensure the successful and effective implementation of cooperative learning is the adoption of the idea that cooperative learning be taught as a formal, instructional "unit" as opposed to being haphazardly incorporated on an irregular basis throughout the school year. Often teachers believe that simply placing students in groups to work on an activity or project exemplifies the practice of cooperative learning. Sometimes, teachers do take the time to teach some social skills needed for working together in groups along with some basic principles regarding the sharing of work. However, this teaching is done implicitly. That is, instruction is usually presented through the traditional basic lecture style where the teacher talks and the students listen.

Numerous research studies involving cooperative learning are based on the premise that providing students with the opportunity to work together will promote positive social interactive skills (Mevarech & Susak, 1993). Lack of explicit
instructions involving cooperative skills and failing to provide several opportunities for the students to practise the cooperative skills necessary for successful collaboration can reduce the likelihood of successful cooperative experiences in the classroom.

Educators need to have a clear understanding of what cooperative learning is, and be able to impart to students the concrete, explicit strategies and specific skills needed for successful collaboration. In explicitly modeling and teaching a unit involving all of the essential components of cooperative learning to students first, it is anticipated that positive groupwork and interaction with others will result, enhancing the students’ working and social relationships.

The primary purpose of this study is to determine whether explicitly teaching students cooperative skills first is more effective than implicitly teaching students cooperative skills. Students instructed by the explicit approach might demonstrate a deeper level of understanding of what it means to work with others in a positive setting and exhibit a greater success at achieving and completing common academic goals related to a group project. Additionally, students instructed through the use of the explicit learning strategy as opposed to the implicit learning strategy might find working in cooperative groups a more meaningful and positive experience.

Finally, it is hoped that the findings of this study will assist teachers in implementing cooperative learning practices in their classrooms. The development and use of the cooperative learning teaching unit is hoped to be an effective and
valuable tool in providing explicit instruction for cooperative learning skills in the classroom.

Definition of Terms

**Academic Test** is a measure of the students' knowledge related to the material covered in the famous artists unit. The test is divided into four sections: matching phrases, matching paintings, true/false statements and fill-in-the-blank questions.

**Appearance** is one of six components used in rating the student groups' artist project. A score in the range of zero to 5 was given to student groups depending on the neatness of the written part of the project and degree of effort involved.

**Attitudinal Survey** is a measure of the students' beliefs and feelings regarding cooperative learning and working collaboratively in groups. The survey consists of two parts. The first part provides data on 20 statements related to cooperative learning and students reflecting and rating how each statement best describes them. The second part provides data for five open-ended questions pertaining to students' thoughts and beliefs about cooperative learning itself.

**Completeness** is one of six components used in rating the student groups' artist projects. A score in the range of zero to 5 was given to student groups depending on the number of answers completed for the required questions.

**Cooperative Learning** is a teaching strategy in which students work together in small, heterogeneous groups toward a common goal or task. Cooperative learning promotes and facilitates students' learning of new material as well as the acquisition of valuable social skills.
Creativity is one of six components used in rating the student groups' artist projects. A score in the range of zero to 5 was given to student groups depending on the degree of creativity used in representing the required answers.

Elaboration of Answers is one of six components used in rating the student groups' artist projects. A score in the range of zero to 5 was given to student groups depending on the degree of elaboration for each required answer.

Explicit Instruction Training Sessions for the required answers are 10 training sessions, approximately 50 minutes in length. The first seven sessions provide the explicit teaching and modeling of the essential components of cooperative learning. Students then take part in three teambuilding activities that reinforce the cooperative skills explicitly taught in the initial seven training sessions.

Explicit Training of Cooperative Skills involves teaching students why the strategy is of value to them, when/where/how the strategy can be used, modeling the strategy and providing opportunities for students to practice the strategy (Gaskins & Elliot, 1991).

Famous Artists Project is the final product resulting from researching each of the six artists. Students, in groups of four, are required to describe three to five facts about the artist's family life and background, three to five facts about the artist's style of painting, what and whom he liked to paint, and to identify and describe three of the artist's most famous paintings. Finally, students are instructed to illustrate some important part of the painter's life and give three additional interesting facts about the artist.
null
Famous Artists Unit is a unit of study exploring many aspects and facts related to six famous artists and their lives. A life account of each artist (Van Gogh, Rembrandt, Monet, Da Vinci, Picasso, Gauguin) on laminated cards was made available to each group of students for research purposes and completion of their project.

Implicit Instruction Training Sessions are 10 teambuilding activities of approximately 50 minutes in length, providing an opportunity for students to become familiar with one another, begin to trust each other and be exposed to the cooperative elements that have been associated with working in groups.

Implicit Training of Cooperative Skills involves less preparatory instruction than explicit training. Students are provided informal opportunities to get to know their group members through simple teambuilding activities, building a sense of trust and acceptance among team members.

Illustrations is one of six components used in rating the student groups' artist projects. A score in the range of zero to 5 was given to student groups depending on the number and quality of illustrations in the project.

Organization is one of six components used in rating the student groups' artist projects. A score in the range of zero to 5 was given to student groups depending on the level of organization and logical sequencing of answers.

Outline of the Remainder of the Document

Chapter Two focuses on a review of the literature about cooperative learning including theoretical background, educational changes and current trends of this
instructional strategy. Components and models of cooperative learning are discussed. Explicit instructional strategies are examined in terms of their relevance to cooperative learning.

The third chapter outlines subject selection, materials used for assessment, procedures and data collection. The method used in the data analysis is discussed, as well as the limitations of this study. Chapter Four presents the findings from this study in three sections: Attitudinal Survey, Academic Test and Group Artists Projects. Chapter Five discusses major findings of the present research with respect to students' attitudes toward cooperative learning and academic achievement when interacting with others. Finally this chapter provides for some possible recommendations in education, and overall conclusions are discussed with suggestions for further research in the area of implementing a cooperative learning program through explicit instruction strategies.
CHAPTER TWO: REVIEW OF THE LITERATURE

Introduction and Overview of the Chapter

Presently in many schools, taking risks to increase one's competence is not rewarded (Johnson & Johnson, 1989). One of the paradoxes of schools is the increasing conflict between what school success requires and what the reality of school life rewards. School success requires that teachers continually strive to improve their instructional expertise. School reality is that the teachers who are rewarded are those who state that they are instructional experts, have everything under control, and understand their subject matter areas thoroughly (Johnson & Johnson, 1989).

The status quo for most educators is lecture style, whole-class discussion and instruction, individual worksheets and competitive tests (Johnson & Johnson, 1989). Many of today's schools are comprised of units, processes, actions and individuals that apparently seem aloof to other teachers' programs rather than working together in a close-knit community. An individual's actions in the organization often bear no predictable relationship to the actions of others (typically found in a cooperative learning setting) reflecting an independent state as opposed to an interdependent one (Johnson & Johnson, 1989).

This literature review provides an overview of the theoretical background and current trends of cooperative learning. Various cooperative learning models and approaches are outlined. This chapter also investigates the positive effects of cooperative learning on students' performances and social behaviours.
Challenges of the cooperative learning instructional approach are reviewed as well. Finally, explicit instructional strategies are examined, and the relevance these strategies have to the present study are discussed. This chapter concludes with the purpose of the present study and outlines the related hypotheses.

Theoretical Background

Direct whole-class instruction is still the single most prevalent form of teaching practised in schools today (Johnson & Johnson, 1989). Although this form of teaching continues to be an efficient manner in which to instruct children, rapid changes in this technological society may warrant consideration of alternate teaching styles. This style of classroom teaching has proven exceedingly resistant to change, even in the face of concerted efforts to introduce alternative methods of instruction (Sharan, 1994). Many investigators agree that the primary impediments to instructional change is in the school's organization and norms, as well as the resistance of individual teachers to the process of change (Sharan, 1994).

Twenty years have passed since the new wave of cooperative learning methods appeared. Despite the numerous studies and existing research that clearly demonstrate the positive effects of cooperative learning methods on student outcomes, educators continue to view cooperative learning as appropriate for particular kinds of subject matter. Furthermore, cooperative learning is often viewed, especially by administrators, as an appendage to
traditional whole-class instruction (where students are teacher led through the lecture style approach) that can be acquired by taking part in a few workshops (Sharan, 1994).

One theoretical rationale for cooperative learning comes from the Russian psychologist, Vygotsky, claiming that "our human mental functions and accomplishments have their origins in our social relationships" (Thousand, Villa & Nevin, 1994, p.9). Vygotsky advocates that children solve practical problems through a holistic process involving perception, speech, action and social exchange. Socially meaningful activity (particularly dialogue between student and student) serves as the generator of consciousness and an important instrument in building new-found conceptions. This collaboration by a community of learners is viewed as an integral part of cognitive growth (Davidson & Worsham, 1992).

In cooperative learning settings, students see other students in different stages of achievement of a cognitive task. Peers give support and help each other. Observing other students in a variety of environments assists children in internalizing the cognitive functions that they are attempting to master, or as Vygotsky states "are within their zone of proximal development" (Stevens, Slavin & Farnish, 1991). Furthermore, Vygotsky asserted that concepts, schemata and higher cognitive performances could be formed and modified through communication with others in group discussion (Mevarech & Susak, 1993).

One of the primary philosophers of education, Dewey, argued that school experience should "weave into its very fabric the values, social order, and
processes it seeks to impart and not merely teach about these processes" (Riel, 1990, p. 445). Cooperative learning is presently being promoted as an approach to transform the experiences students have in school to the basic principle of direct experiences to which Dewey refers. For Dewey, the process of learning in school occurred in a social context in which students had cooperative interchanges with their fellow students, and students' interest in the subjects they study was stimulated by giving them a reasonable measure of responsibility for influencing and directing their work in school (Sharan & Sharan, 1992).

Dewey believed that a child's experiences in school should not be set apart and conducted in a manner unrelated to the structure and values of the society, but should be essentially related to the goal of having students live as citizens in the society around them. School experiences should be meaningful and consistent with students' present experiences, if the values, knowledge and skills that schools cultivate are to affect students' lives in the future (Sharan & Sharan, 1992).

Dewey viewed education as a process whereby students should acquire a profound sense of belonging to social groups, without losing their individuality, as opposed to fostering disconnected individualism through competition. For Dewey, competition is the "hallmark of an elitist education. . .ripping groups apart, setting people against one another rather than strengthening the social fabric, not one seeking to cultivate egalitarian values and relationships among peers" (Sharan & Sharan, 1992, p. 32).
Educational Changes and Current Trends of Cooperative Learning

The theoretical clues extracted from the writings of Dewey and Vygotskty shed light on how cooperative learning can change relationships between students and teacher and between students and knowledge. Commitment to professional growth and a willingness to take risks in experimenting with new instructional strategies and practices are the fundamental components of what effective and successful teaching should be.

The present reality of schools is that society is placing new demands on the educational system to change. In fact, the Ministry of Education and Training (1993) document titled, The Common Curriculum states that, societies are not static -- that they change and evolve in response to events occurring at the local, national and global levels. Schools must respond to these changes and the consequences that they have for students. . . . Our society is currently undergoing far-reaching changes in the structure of families, in the composition of the population, and in the nature of the economy. Other trends, such as the information explosion, the impact of new technologies, changes in the workplace. . .all dictate a review to traditional models and approaches in education. Responding successfully to these changes and to changes in the student population. . .requires new ways of thinking about and organizing curriculum. ( p. 3)

A specific change recommended by The Common Curriculum involves the instructional change of learning styles of students and teaching practices of educators. One of the main underlying principles from the document states,
Students of all backgrounds will benefit from opportunities to work in groups in an atmosphere of cooperation and mutual respect. Such opportunities will not only foster learning and the development of effective interpersonal skills, but will also lead students to understand and value the contributions of people from a wide variety of backgrounds. (Ministry of Education and Training, 1993, p. 4)

Clearly, the implementation of cooperative learning is a vehicle for the fostering and fulfillment of these proposed changes and outcomes.

A healthy society needs a balance between competition and cooperation. When students leave school, it is hoped that they would have the psychological health and stability required to build and maintain career, family and community relationships, to establish a basic and meaningful interdependence with other people, and to participate and contribute productively in our society (Johnson & Johnson, 1989). Cooperative learning provides an opportunity to move beyond traditional teaching and learning paradigms into exciting and interactive learning exchanges.

A recent study identified three major stumbling blocks for American industry and technology, one being a national inability to cooperate (Adams et al., 1990). In 1988, the American Society for Training and Development and the U.S. Department of Labour Employment and Training Administration outlined seven skills that employers are seeking from their employees. With the exception of competency in reading and writing, the remaining six skills were considered to be social/collaborative skills including learning to learn, listening
and oral communication; adaptability (i.e., creative thinking and problem solving); personal management (i.e., self-esteem, goal setting/motivation, and personal/career development); group effectiveness (i.e., interpersonal skills, negotiation, and teamwork); organizational effectiveness and leadership (Burron, James & Ambrosio, 1993).

Undoubtedly, new technological work requirements are changing the educational equation at an accelerating rate. The factory model, with its top-down organization has been replaced by new concerns about collective responsibility. Even normally competitive firms are realizing that they have to collaborate to progress through technological change cycles more quickly. Today's students are being ill served by the silent and frequently isolated teaching techniques formed in the days of factory assembly lines, as teachers continue to structure their classrooms individualistically or competitively (Adams et al., 1990).

Educators need to move from the certainty of textbooks, manuals and many of the elements that go hand and hand with the traditional approach to the organization of classroom learning. Where better to develop updated teaching methodology and the team approach of cooperative learning than in teacher's college?

Burron et al. (1993) compared two physical science laboratory sections in a course for elementary/middle level preservice teachers. One section was taught using the traditional method, while the other was instructed through the implementation of the Learning Together technique of cooperative learning.
Results revealed an increase in positive attitudes toward science and significant gains affectively and socially, justifying the use of this strategy as a valuable means of instruction for today’s education. Also, once exposed to this successfully proven mode of instruction, future teachers may begin to see cooperative learning as an important method of teaching in their own classrooms.

Burron et al. (1993) suggested that collaborative skills be taught directly. With direct instruction and modeling of cooperative techniques, students can begin to develop effective interpersonal skills and employ these valuable skills on a consistent basis when working with others. Burron et al. (1993) also recognized the importance of some type of longitudinal study that would track students into their initial years of teaching. This would help determine any carry-over effects cooperative learning would have on interpersonal relationships with students, peers and administrators.

Gamson (1994) has claimed that most of the development of working cooperatively in groups has occurred in elementary and secondary schools, and has moved into higher education only in the past few years. Faculty in a variety of disciplines, who are not content with the standard practice of lecturing, are seeking new ways to reach the present population of college and university students. Most faculty continue to struggle with implementing collaborative work effectively, as do regular classroom teachers, and become disillusioned when not immediately successful (Gamson, 1994).
Gamson (1994) outlined three challenges to collaborative learning. First, the practice of placing students in groups without a clear understanding of the significance of group learning has made it difficult to know when groups are appropriate and not appropriate, how to design them and how to create effective cooperative programs. A theoretical base for understanding how and why cooperative learning has significant effects seems to be lacking. Gamson (1994) suggested looking for theoretical clues to the manner in which cooperative learning leads to a transformation in the relationships between students and teacher and students and knowledge. Often some of the novel educational changes that are introduced are temporary and cyclical. It would seem essential then, that solid theories be clearly taught, and the basic underlying principles of the theory involved (such as cooperative learning) be transferred and adapted to new settings, providing further support to educational practices (Gamson, 1994).

The second challenge focused on the application of cooperative learning to classes in all areas of education. Since faculty are not inclined to discuss their teaching practices with others in their educational setting, there has been some doubt that cooperative learning will spread across an isolated environment beyond those who are currently implementing it. The real challenge then, is to specifically create a collaborative teaching community beyond the classroom setting. Faculty should be actively sponsoring campus discussions about collaboration, refining and developing the required cooperative skills, and creating and facilitating group work (Gamson, 1994). Although many faculties
have noted a strong desire for community among faculty, a sense of community, regardless of its size, is difficult to find. Collaborative activities are often unsuccessful because of an underlying need to compete and sometimes pervading feelings of jealousy. The challenge of eliminating these emotions and behaviours for most universities and colleges continues (Gamson, 1994).

Thirdly, Gamson (1994) urged that discussions of cooperative learning make the connection between what students are learning in the classroom and what is taking place outside the classroom in society. Students in cooperative environments are readily learning many applicable skills that could prepare them for being part of and providing service to the community at large. Undoubtedly, cooperative learning has many valuable contributions to offer outside of education. To ensure that these larger societal effects of cooperative learning occur, it is essential that the implications of cooperative learning be more explicitly applied to the community outside school. For example, courses offered in conflict resolution and mediation teach the skills of collaboration and equal participation, developing the prosocial skills that are essential in many of today's workplaces and organizations (Gamson, 1994).

Components of Cooperative Learning

In the last 15 years, several cooperative learning models have been developed and circulated over many parts of the world. Traditionally, the practice of implementing the cooperative learning instructional approach in classrooms, on a consistent basis, is limited. However, this method of teaching
is currently being employed more frequently in classrooms, and there is presently a strong push for this style of teaching to continue (Battistich, Solomon & Delucchi, 1993).

Johnson and Johnson (1989) posit five essential components in promoting cooperation and effective learning among students working in groups: positive interdependence, face-to-face interaction, individual accountability, social skills and group processing. Thousand et al. (1994) support these five conditions stating that all viable, successful cooperative relationships have these five basic components in place.

The first requirement for an effectively structured cooperative program is to ensure that students perceive that they are linked with other team members in such a way that they cannot succeed unless their teammates do and vice versa. If this notion of "positive interdependence" does not occur and is not actively in place in the learning situation, then the learning is not cooperative but competitive or individualistic. Positive interdependence clearly exists when all group members are fully aware that the efforts of everyone on the team are needed for group success (Sharan, 1994).

Face-to-face interaction among team members is an element of cooperative learning that has a very significant influence on the efforts to achieve, and displays a caring and committed relationship to other team members while striving to achieve the desired goal. Some of the elements characterized by face-to-face interaction transpire when group members provide each other with effective assistance, exchange resources, information and
feedback, and challenge each other's opinions and reasoning. This, in turn, fosters higher quality decision making, and builds a solid foundation of trust and mutual respect amongst team members (Thousand et al., 1994).

The third component of cooperative learning is individual accountability where there is a sense of personal responsibility to other group members for contributing a fair share to the group's success. Continual feedback and assessment for determining the level of each person's achievement, provided by the teacher, will help ensure that all group members are participating equally and that there are no "free riders" in the group (Johnson & Johnson, 1989).

The appropriate use of interpersonal and small-group skills is the fourth key ingredient for high-quality cooperation. It is imperative that the basic social skills, such as building trust, resolving conflicts amicably, communicating clearly, taking turns to speak and to listen actively, accepting differences, be developed, practised and in place before students participate in successful cooperative settings (Thousand et al., 1994).

Johnson, Johnson and Stanne (1992) examined the fifth component, group processing, as another mediating variable affecting the relationship between cooperative efforts, group productivity and individual achievement. They define group processing as reviewing and reflecting on a group session to analyze the members' behaviours and activities that were helpful and unhelpful and then deciding what to continue or modify.

Johnson et al. (1992) investigated whether members of cooperative groups needed to determine how well their group was functioning, to maximize
individual learning and group productivity. Four conditions were part of this study: cooperative learning with no processing, cooperative learning with the teacher providing instruction in cooperative skills, cooperative learning with both the teacher and students giving feedback about how well students were interacting, and individual learning. The subjects were 49 Black American students with a high academic ability, all of whom were beginning their senior year of secondary school and had been accepted for admission at Xavier University. The students were randomly assigned to one of the four conditions and worked in groups of three within each condition. The students were assigned a complicated, computer-assisted, problem-solving assignment that required them to sail an ancient ship to the New World and back in search of gold. This task involved technical information on map reading and navigation as well. Groups of students, in all four conditions, participated in this 3-hour instructional unit.

Evidence was found to support group processing as a factor in increasing individual achievement and group productivity. This was clearly demonstrated by the students who were involved in the cooperative conditions achieving higher scores on performance measures (the distance a team's ship travelled and the amount of gold obtained) compared to students in the individual condition (Johnson et al., 1992). It may be concluded that the more aware people are of what they are experiencing, the more aware they will be of their own role in determining their success. Through group processing, members gain insight about how to behave more effectively. The feedback provided to
members of a small group develops students' self-efficacy by focusing attention toward effective cooperative behaviour and eliminating personal drawbacks such as doubting oneself or being self-involved (Johnson et al., 1992).

Models of Cooperative Learning

Many of the cooperative learning models and approaches that have been developed over the years incorporate the five components stemming from the Johnson model. Two of the oldest and most widely researched models of cooperative learning are Student Teams-Achievement Divisions (STAD) and Teams-Games-Tournament (TGT) developed by Robert Slavin (1990). STAD is composed of five elements: class presentations, teams, quizzes, individual improvement scores and team recognition. A central feature of STAD is the combination of individual accountability and either group rewards or group goals. Individual students receive grades based upon their own quiz scores and teams receive points based upon individual members' improvement over past performance. TGT is very similar to STAD in most respects, except the element of quizzes is replaced by academic tournaments, where students compete as members of their teams with other team members who are similar to them in past achievement measures (Slavin, 1990).

In the Original Jigsaw model, developed by Aronson and colleagues in 1978, each student on a team becomes an expert in one aspect or part of a topic or lesson. This, in essence, promotes interdependence and accountability as students are then accountable to their group for teaching part of the lesson that
they are responsible for to the rest of their team (Sharan, 1994). In 1980, Slavin modified this method and renamed it Jigsaw II where there is competition among the groups. The cooperative incentive occurs as teams compete for a variety of group rewards such as group recognition and special privileges for all members of a winning team. These group rewards are based on individual performance (Sharan, 1994).

Team-Assisted Individualization (TAI), developed by Slavin in 1985, was devised to link the motivational incentive of group rewards with an instructional approach for the varying, individual skills of each student. Heterogeneous groups are present in this model however each student works on an individual unit of instruction and then proceeds to prepare teammates for the final test of each unit. This process will inevitably involve discussion and peer tutoring among team members, building in the elements of individual accountability and group rewards (Slavin, 1990).

The Group Investigation model, developed by Sharan (1990), focuses on students monitoring their own learning, including both a cooperative group process and a cooperative goal structure considered necessary for improving achievement in a cooperative setting. The four major dimensions of this method involve the class division into a number of groups, with each group responsible for researching one part of a broad topic, the topic promotes interdependence among group members, students then gather information, plan, coordinate and evaluate their work with other students and finally the teacher acts as the resource person offering guidance and clarification when necessary (Slavin,
This particular model of cooperative learning closely correlates with the model implemented in the present study. Students were divided into several groups, given a topic related to famous artists and gathered the information needed to complete a project as outlined in the requirements by the researcher. The groups planned and designed the layout and format of the project. The researcher acted as the resource person during the group investigation sessions, monitoring and offering assistance when needed.

There are many more cooperative learning methods and models being practised in today's classrooms. Yet, it is clear that the five components presented in the Johnson model seem to filter through several of the models discussed, at varying degrees and levels. Each model has its own uniqueness and qualities, and the implementation of the different approaches to cooperative learning should be one of flexibility and creativity on the teacher's part.

Cooperative Learning Research

The gradual acceptance of cooperative learning can be largely attributed to the vast research revealing positive effects on students' academic achievement and social development (Davidson & Shearn, 1990; Johnson & Johnson, 1986; Sharan, 1994 cited in Kahl & Woloshyn, 1994; Slavin, 1983a, 1983b cited in Stevens et al., 1991). In reviewing the typical patterns of verbal communication in whole-class instruction, Shachar and Sharan (1994) found that less able or less verbally accomplished students had limited opportunity to express themselves. Confident and self-assured students responded quickly to
questions asked by teachers. Students who were unsure of themselves were reluctant to participate and remained silent when a question was posed by the teacher. The feeling of being "on stage" tended to inhibit their responses (Shachar & Sharan, 1994). From a Vygotskian perspective that highlights the value of verbal interaction as a means for enhancing thinking processes, it seems the conditions of whole-group discussion would hinder rather than foster cognitive development for some students.

Shachar and Sharan (1994) conducted a study focusing on junior high school students' verbal interaction in small multiethnic groups. Subjects participated for several months in history/geography classes using either the Group Investigation method (cooperative learning approach) or the traditional whole-class method. They hypothesized that the lower socioeconomic Middle Eastern students taught with the Group Investigation method, would participate more consistently and demonstrate more divergent forms of speech in group discussions with middle-class, Western students than students who participated in the whole-classroom approach. It was found that Western students dominated the discussion with respect to the number of turns of speech in the whole-class condition, whereas with students taught with the Group Investigation approach, turn-taking and expression of oneself was practically equal among both ethnic groups (Shachar & Sharan, 1994).

Related research has shown that, overall, children's verbal questioning skills are weak. Teachers who tend to generate lower cognitive questions pertaining to facts alone, minimize the opportunity for students to model self-
generating and higher cognitive questions. Another factor contributing to poor questioning skills most often demonstrated by students is the anticipated and potential embarrassment pupils may encounter if they ask questions. Furthermore, results have demonstrated that children tend to question and ask peers more than they ask adults, and they tend to give longer and more complex responses to peers than to adults (Mevarech & Susak, 1993). It seems natural then, that small group settings are more conducive for children to communicate and generate questions. Yet, small groups do not provide feedback correctives for enabling every learner to attain mastery of the task. Mastery learning is an effective method for providing systematic feedback correctives. Mevarech and Susak (1993) hypothesized that combining cooperative and mastery strategies would improve cognitive performances and produce a higher level of questioning skills than each method in isolation.

The study took place over a period of approximately 3 months and involved 271 third- and fourth-grade Israeli children. Questioning skills, creativity, and achievement on a curriculum unit were the three variables involved in this study. Pretesting for the questioning skills and creativity for all participants was conducted using the six cognitive categories of Bloom’s taxonomy and the Torrance Test of Creative Thinking: "Improving a Toy". Participants were then randomly assigned to one of the following four treatments: cooperative learning, mastery learning, cooperative-mastery learning or control group (Mevarech & Susak, 1993).
All treatment groups used the same reading text as a basis for teaching questioning skills, the same amount of time and followed the same procedure for reading, interpreting and seatwork activities. Although the seatwork activities centered on questioning skills, specific tasks varied as a function of group assignment. At the conclusion of the study, all students were administered the questioning skill and creative thinking instruments, as well as the 20-item multiple-choice test based on the curriculum unit content (Mevarech & Susak, 1993).

Findings revealed that the third- and fourth-grade participants' ability to generate higher cognitive questions had improved substantially in the combined cooperative-mastery learning group than in the cooperative learning group, who, in turn, achieved higher measures than the control group. Creativity and originality also showed improvement (Mevarech & Susak, 1993). The cooperative learning group scored descriptively, but not statistically, higher than the control group (individual learning). The failure to find significant differences could be due to the lack of specific instructions about the cooperative skills required when learning in small groups. Several studies involving cooperative learning are based on the implicit assumption that providing children with the opportunity to work together in groups will lead to positive social interactive skills such as giving and receiving help. It seems imperative, then, that students learn how to work cooperatively before they begin to work in small groups (Mevarech & Susak, 1993).
Kahl and Woloshyn (1994) questioned whether adequate learning instruction by itself maximized the learning of factual materials. They contended that without explicit instruction of elaboration strategies, a process whereby students make meaningful connections between prior knowledge and information yet learned, students would fall back on note-taking and repeated reading. The main purpose of their study was to establish whether 68 sixth-grade students using elaborative interrogation instruction (a question-answering strategy that fosters learning of factual information) would enhance and strengthen their ability to attain factual information studied in small groups (Kahl & Woloshyn, 1994).

Students were randomly assigned to one of the following conditions: cooperative elaborative interrogation; elaborative interrogation; cooperative learning; or reading-for-understanding control. Students in the cooperative conditions were then assigned to small groups of four. All students were given 36 factual descriptions about six animals and were required to process this information by following specific instructions, depending on which experimental condition they were assigned to. A free recall and associate matching tests were administered to assess learning (Kahl & Woloshyn, 1994).

Results found that when students reviewed materials in a collaborative approach it enhanced learning, as performance scores were descriptively higher than the reading control scores. However, cooperative gains were reduced when compared to those of the elaborative interrogation group by itself, with learning being best when students are provided with explicit instruction. It was found that
in the cooperative learning condition, students rarely used prior knowledge to elaborate or make inferences and their questions tended to be low-inference ones (Kahl & Woloshyn, 1994).

Simply assigning students to work collaboratively does not ensure that they will interact in a positive fashion that will promote learning. Pressures toward conformity may result in unproductive collaboration leading to compromises that combine the worst, rather than the best, of members' ideas (Battistich, Solomon & Delucchi, 1993). Students may adopt status-based norms of interaction reinforcing existing stereotypes, whereby the ideas of "low-status" students are ignored while those of "high-status" students are regarded as important and of merit. Battistich et al. contend that more research is needed to determine the kinds of group processes that maximize the advantages of cooperative groups, the various methods to help learners effectively interact in group settings and how participation in cooperative learning leads to positive academic and social outcomes for students.

Participants were teachers and students (fourth- through sixth-grade classrooms) from four elementary schools located in two districts in the San Francisco Bay area of northern California. Direct observation was the method employed to obtain information about the frequency and quality of students' participation in cooperative settings. All of the participating classrooms were periodically and unexpectedly visited for 2 hours by trained observers approximately two to three times over an extended period of time. The observations focused on lessons, projects, discussions and activities and were
divided into 5-minute intervals, during which time the observer randomly selected a small group of students to focus on.

Battistich et al. (1993) found that the effects of cooperative learning on students' academic achievement and social development are a function of the quality of group interaction. High-quality group experiences, where group members were friendly, helped one another, displayed concern for each other and worked collaboratively, experienced a more positive classroom environment compared to low-quality group interactions where negative student outcomes existed.

Science courses are a natural environment for investigating cooperative learning practices, as students are often required to work in small groups because of limited equipment and supplies and the constraints of the experimental processes (Lazarowitz, Hertz-Lazarowitz & Baird, 1994). Research conducted by Lazarwitz et al. (1994) assessed affective and social outcomes in a cooperative setting as opposed to centering specifically on the cognitive outcomes of achievement testing and process skills. At the high school where this study was conducted, an individualized mastery learning program was implemented. In a typical class, students learned to work independently on their science studies with few lectures and minimal large-group activities. A group mastery learning approach, where the cooperative mode of instruction considers learning as not only a cognitive process but a social one as well, was proposed. One of the main objectives of this study was to investigate the group mastery learning's impact of the cooperative learning mode on each student's academic
achievement, creativity, self-esteem and number of friends (Lazarowitz et al., 1994).

The participants included 120 students with varying academic backgrounds and ages from the 11th and 12th grades. Students were randomly assigned to either the experimental or control group, both studying the topic of energy. All subjects were instructed by the same teacher, using the same books, films and other instructional material. The researchers were responsible for preparing the teacher to use the cooperative learning strategy (Lazarowitz et al., 1994).

The control classes received their instruction through games and activities that were designed to strengthen individual learning techniques. Students self-determined when they were finished a unit and were ready to be tested. The experimental classes participated in games and activities structured to facilitate cooperation and develop social skills. Using the jigsaw method, students moved to other groups to discuss, investigate, learn and prepare for peer teaching. Students then met with their jigsaw group and taught their subunit material to their own group. Testing procedures to measure both academic and nonacademic outcomes were identical for both the experimental and control groups (Lazarowitz et al., 1994).

Assessment results of nonacademic outcomes indicated students using the cooperative learning approach scored significantly higher on all individual nonacademic aspects, including self-esteem and number of friends. Student involvement in the classroom was descriptively higher with the cooperative
groups, (Lazarowitz et al., 1994). Because the researchers (1994) found cooperative learning to have important academic gains related to the completed unit, personal and social advantages for students, they recommended a broader implementation of cooperative methods of learning. This is in view of the potential contributions to students' academic and affective outcomes.

Several other researchers have examined the effects of cooperative learning on achievement and motivation. Achievement motivation is a desire to accomplish something challenging, to overcome difficulties as best as possible and to strive for a high standard of excellence (Daniels, 1994). Cooperative learning is based on the assumption that students are more likely to encourage their classmates to excel when rewards are conditional upon group performance. Students in cooperatively structured classrooms are motivated by their need for social approval, gaining social acceptance for academic excellence. In traditional classrooms, students often face negative social reactions for academic success, being perceived by their peers as working too hard and labelled as "nerd" or "brain" (Daniels, 1994). Support for learning is generally not typical of traditional classrooms, whereas a cooperative group environment can often be an effective motivational impact of peer support for learning (Nichols & Miller, 1994).

Nichols and Miller (1994) compared the effects of cooperative group instruction (utilizing the Team Assisted Individualization model) on motivation and achievement in a high school Algebra class to the traditional lecture method. Sixty-two grade 11 and 12 students from a middle-class high school were
randomly assigned to either a cooperative learning or traditional lecture group. Both pretests and posttests were administered to the students, assessing various aspects of student motivation, learning and performance goal orientation. During the first semester, one class was instructed by the cooperative learning method while the other class received traditional lecture instruction. At the start of the second semester in January, the class receiving cooperative instruction switched to the traditional lecture format of instruction. Both groups were now receiving similar lecture style instruction for the duration of the second semester. In May, both groups completed the motivation survey again and were administered the teacher-made final exams.

Reported results indicated that the cooperative learning condition exhibited higher Algebra achievement than the control group. Students in the cooperative class were more learning goal oriented (putting forth a strong effort to accomplish a challenging task) as compared to performance goal oriented (attempting to "look good" for others and either avoid or are less determined to overcome challenges). Furthermore, students in the experimental condition had higher perceptions of ability and expressed greater intrinsic valuing of Algebra than students in the traditional lecture class (Nichols & Miller, 1994).

Challenges of Cooperative Learning

With each mode of instructional practice there exists the potential for drawbacks or pitfalls. Conflict is frequent and probably inevitable within cooperative efforts, as participants may disagree and argue with each other.
This may be attributed to the diversity of individuals working together, and their interdependence creating conflicts. In fact, the absence of conflict within a cooperative task may indicate apathy toward the process and each other (Sharan, 1994). Students require interpersonal and small-group skills to manage conflicts constructively. Specifically, focusing on the mutual goal of attaining the best decision versus winning, and confirming others' competence while disagreeing with their positions, are two essential social skills for working in groups. Taking the opposing perspective in order to understand both sides of the issue and changing one's mind when the evidence indicates that one should, provide additional examples of some of the necessary social skills required for managing conflict and effective group work (Sharan, 1994).

Thousand et al. (1994) identify four types of students who may disrupt group processes: students who do not do their work, students who are withdrawn, students who are low achievers, and students who are disruptive in a group. An article by Ellis and Whalen (1992) outlines 35 possible strategies for dealing with the above special students and other common challenges (e.g., groups that finish first or last, too much noise, limited time) that may arise in the cooperative learning classroom. When students find it challenging to get along with other group members, Ellis and Whalen (1992) recommend keeping cooperative activities short and simple at first, ensuring academic success and allowing more time to focus on the needed social skills. Placing students wisely in groups and assigning a group role that the disruptive or unmotivated student has a high interest in, are some other possible solutions. Reviewing and
reinforcing group social skills are other strategies for alleviating problems that may arise with a noncompliant child.

Children who prefer to work individually can be encouraged to participate in group work by teaching them the importance of collaborating with others as an essential life skill and the various situations they may face as adults in the work force. Choosing to provide "bonus points" for those students focusing on grades alone or setting up a contract may encourage and motivate the learner who enjoys working alone to gradually participate in group work on a more regular basis (Ellis & Whalen, 1992).

Allowing students to prepare for the task (reading the material the night before) prior to a group activity may help the learner who has difficulty keeping up feel more comfortable about working collaboratively with others. Adjusting the roles to accommodate the challenged student, as well as adjusting or modifying the task, are other possible strategies for ensuring the success of children who struggle with academics (Ellis & Whalen, 1992).

Groups of students that finish first can be given a choice of several enrichment or extended activities related to the group task. Another effective strategy is to have groups that finish early observe other groups or help the slower groups complete the assigned task. It is important to decide how critical it is that the slower groups do in fact complete the activity at the same time other groups do. Modifying the assignment or allowing for extra class time are additional options (Ellis & Whalen, 1992).
On occasion, some group members do all or most of the work (and learning). This concept known as "social loafing" can be eliminated or diffused by making each group member responsible for a unique part of the group's task and, more importantly, have each student be individually accountable for their learning (Slavin, 1990). To ensure that every member of the group is held responsible for accepting and accomplishing a given task, and hence to be accountable, self-responsible learners in cooperative teams, students need to become aware of how to utilize variables of motivation. Creating an environment in which the teachers' and students' level of concern is appropriate for optimal learning and providing interesting and personally meaningful topics or issues related to the students' past, present, or future experience are two instances of how group members can be successfully motivated. Specific, supportive and immediate feedback is also an imperative element in promoting individual accountability and motivation ensuring the success of cooperative group work (Johnson & Johnson, 1989).

Without a clear understanding of the validity of group interaction processes related to student outcomes, cooperative learning activities in the classroom will more than likely fail and diminish in frequency as teachers struggle with this approach (Battistich et al., 1993). Often teachers lack adequate training or experience in successfully implementing collaborative groups, resulting in poor quality interaction in small-group settings. To resolve this pitfall, some cooperative learning approaches suggest training in group interaction skills before the introduction of cooperative learning activities, and
continued monitoring of these skills throughout the group activities.

Furthermore, there is a valid need to take explicit steps in fostering and enhancing positive group experiences. Teachers, then, are vital to the effective implementation of the cooperative approach in the classroom (Battistich et al., 1993).

Explicit Instruction

Gaskins and Elliot (1991, p.38) define learning as "a socially mediated, knowledge-based process that requires active involvement on the part of the learner and which results in a change in understanding." It is questionable, then, whether the knowledge teachers attempt to impart to students by lecturing or routine copying from the blackboard is the best instructional approach for successful learning. Gaskins and Elliot (1991) contend that if significant learning is to take place, children must construct knowledge for themselves. When students are provided with the opportunity to contribute their own points of view and thoughts about a topic during a lesson or activity, they begin to compare, hypothesize, develop and then internalize newly presented knowledge with their own theories. Glaser (1987b cited in Gaskins & Elliot, 1991) refers to the process of students modifying their own theories to reach a new understanding of a theory as learning.

To ensure that students experience this valuable process of new learning, it is the teacher's responsibility to be fully cognizant of, and impart to students, two important components of metacognition (knowledge about thinking). First is
an awareness of the elements that affect learning; second, the processes and strategies (e.g., predicting, planning, elaborating, modifying and assessing) that enable students to be in control of their own learning (Gaskins & Elliot, 1991). For example, when teachers invite students to share their knowledge about a topic through discussion, predictions, comparisons and testing, new theories, frameworks and information begin to formulate. The presence of active involvement enables and enhances meaningful learning experiences. Setting goals, organizing knowledge, constructing meaning and using strategies are all essential components of active involvement (Gaskins & Elliot, 1991).

Direct explanation, often referred to as explicit teaching, is an instructional approach that promotes active student involvement of learning. This approach is based on the foundation that the teacher initially outlines and models the strategy and then provides ample time for students to master the strategy. The teacher offers support and guidance to the students through encouragement and corrective feedback, and explicitly reminds and models to the students about when and how a particular strategy can be extended to other situations (Pressley & Associates, 1990).

Specifically, the explicit teaching model involves eight components or steps that, when correctly implemented, should result in significant acquisition of learning. First, when a new unit is introduced, it is necessary for teachers to state the content and process objectives for that unit (Gaskins & Elliot, 1991). For example, the content objective may be to identify and describe the five
components of cooperative learning and the process objective to role play the important concepts of each of the components in small groups.

Providing an explanation to students as to why and when learning a particular strategy may be of value to them will more than likely encourage and motivate the students to achieve the objective that is being taught. Sharing a personal anecdote with students, pertaining to the importance of an objective, further enhances and reassures students about the validity of mastering a strategy (Gaskins & Elliot, 1991). The value of understanding the five components of cooperative learning may be expressed by the teacher discussing with students how an increasing number of businesses and jobs in the workplace are shifting their top-down organizational models to a collaborative, team approach (Adams et al., 1990). The teacher may then provide a personal experience describing why it is necessary that a teaching staff cooperate with each other when planning and developing units, activities and events. A discussion concerning when and where it is appropriate and not appropriate to utilize the cooperative strategy may follow (e.g., cooperative activities are usually not appropriate when writing a test or exam).

Explaining how to implement the strategy is the next step, followed by step six where the teacher models the strategy (Gaskins & Elliot, 1991). If one of the objectives in the cooperative learning unit is to teach the students how to move into their groups quickly and quietly, the teacher may first outline the procedure for moving the desks and assigning each group their location in the
room. The teacher then could model how she would move from one location in
the room to another quickly and without disruption.

Giving students several opportunities to practise moving into their groups
is an example of step seven of explicit teaching. Providing students with
feedback on the progress they are making is a significant element of this step. If
and when students meet with difficulty in successfully completing the objective
(moving into groups efficiently), the teacher provides reminders, reexplains or
elaborates about the purpose of the objective (Gaskins & Elliot, 1991).

Stevens et al. (1991) maintain that cooperative learning settings provide
students with an excellent opportunity to observe others, seek out peer support,
model and practise what group members are doing and, in essence, internalize
the cognitive functions they are trying to achieve. When a group member is
asked to explain, elaborate or defend his or her point of view, evaluation and
internalization of his or her own new knowledge are related, reinforced and
enhanced to their prior knowledge. Training students how to dialogue and
interact effectively during collaboration activities is an essential component of
cooperative learning. Clearly, teachers who use the cooperative learning
approach are responsible for explaining and modeling to the pupils not only how
to socially interact and support group members, but why collaboration is
important (Stevens et al., 1991).

Stevens et al. (1991) studied the impact of direct instruction on reading
comprehension strategies in conjunction with cooperative processes. Subjects
were 486 third- and fourth-grade pupils from an ethnically diverse school district
located in a medium-sized city in Pennsylvania. The students were randomly assigned to one of the following treatment groups: direct instruction with cooperative learning; direct instruction in reading comprehension; and the control group where traditional methods for instructing were used by the teachers. Students were assigned to these three instructional treatments to identify the main idea of passages. The duration of this experiment was 4 weeks (Stevens et al., 1991).

The direct instruction with cooperative learning group spent approximately 45 minutes of their allotted one hour and a half reading time using Cooperative Integrated Reading and Composition materials on main idea comprehension (4 days per week). Cooperative Integrated Reading and Composition programs offer explicit instruction in reading comprehension, writing and language arts skills. The remaining time was spent reading basal readers and completing related follow-up activities. Students were introduced to the essential components of cooperative learning through explicit instruction (modeling a team building activity and describing to the students how to discuss answers and give feedback). Students were informed that their teams could earn rewards based on total team scores. Teammates discussed and worked on assigned follow-up activities, and then reached a consensus about the answers, providing corrective feedback to group members when necessary (Stevens et al., 1991).

In the direct instruction reading comprehension group, the same instructional time was given for Cooperative Integrated Reading and Composition comprehension materials and reading stories from basal readers.
In this treatment, the teachers gave direct instruction on comprehension strategies to the whole class. Students then individually completed the assigned follow-up activities that were given in the cooperative group. In both experimental treatment groups, no explicit instruction was given by the teacher on comprehension skills when completing the basal-related follow-up activities (Stevens et al., 1991).

In the control group, the teachers used the traditional classroom methods and teaching strategies. This involved the same basal reading series used in both treatment conditions; however students were divided into two or three reading groups. Skill instruction and related follow-up activities for each lesson varied considerably on a daily basis and across the classes. There was no explicit teaching of any comprehension skills. The familiar practice of teachers checking students' answers and informing them of the correct responses took place (Stevens et al., 1991).

To assess students' abilities entering into this experiment, a 30-item multiple-choice pretest was given involving a detail question, a main idea question and an inference question for each of the 10 paragraphs pupils were asked to read. A 20-item multiple-choice posttest was administered as the dependent measure and included a main idea question and an inference question for each of the 10 paragraphs students were instructed to read (Stevens et al., 1991).

Combining cooperative learning processes and direct instruction did not reveal a statistically significant effect relative to students in the traditional
instruction control group; however students in the cooperative condition scored approximately a third of a standard deviation higher on the main idea posttest. Both of the experimental treatments utilizing direct instruction revealed significant and substantial effects on students' achievement. The positive effects for students who were in the cooperative condition compared to the control group were prominent as well. These results indicated that when classroom activities organized in a cooperative approach were combined with direct instruction in reading comprehension, their alliance to each other created a very functional and powerful instructional process (Stevens et al., 1991).

Present Study and Hypotheses

The intent of this study was to examine the effects of training students either explicitly or implicitly in cooperative learning skills and concepts. Cooperative learning is a teaching strategy that involves students working together in small groups to achieve a common goal. In this study, explicit training of cooperative skills involved teaching students why the strategy was of value to them, when/where/how the strategy could be used, modeling the strategy, and providing opportunities for students to practise the strategy (Gaskins & Elliot, 1991). Implicit training of cooperative skills entailed less preparatory instruction. Students were provided informal opportunities to get to know their group members through simple teambuilding activities, building a sense of trust and acceptance among team members. Like students in the explicit condition, these students also participated in cooperative learning
activities and were informed about the essential processes required when working cooperatively. Specifically, this study investigated whether explicitly training students in the essential components of cooperative learning had a positive effect on learning and completing goals more so than implicit training of cooperative skills. There were three hypotheses associated with this study:

1. Students in the explicit training condition would achieve greater scores on a unit test as compared to students who received implicit cooperative training.

2. Students receiving the explicit cooperative learning training would demonstrate more favourable beliefs and positive attitudes towards cooperative learning compared to students who received implicit training.

3. Students receiving the explicit cooperative learning training would achieve greater scores on a group project as compared to students who received implicit cooperative training.
CHAPTER THREE: METHODOLOGY

Overview of the Chapter

Cooperative learning is a very effective teaching strategy that promotes and facilitates students' learning of new material, as well as the acquisition of valuable social skills (Mevarech & Susak, 1993). Many of the cooperative studies are based on the implicit assumption that providing children with the opportunity to learn together in groups results in positive social interaction and enhanced learning (Battistich et al., 1993). However, an area of concern is whether the lack of adequate preparation and training of students for working together affects social interactive skills and learning outcomes. Simply assigning students to groups to work collaboratively, following varying amounts of implicit cooperative training, may not ensure that they will interact in a positive fashion that will promote learning. This study is designed to determine whether explicitly teaching students about the components and skills of cooperative learning is more effective in ensuring a higher quality of cooperation and achievement than implicitly teaching cooperative learning skills.

Explicit training of cooperative skills involves teaching students why the strategy is of value to them, as well as when, where and how the strategy can be used, modeling the strategy and providing opportunities for students to practice the strategy (Gaskins & Elliot, 1991). Implicit training of cooperative skills entails less preparatory instruction. Students are provided informal opportunities to get to know their group members through simple teambuilding activities,
building a sense of trust and acceptance among team members. Like students in the explicit condition, these students also participate in cooperative learning activities and are informed about the essential processes required when working cooperatively.

Subjects

The participants were 48 English-speaking fourth- and fifth-grade students from a middle-class, separate school (29 males, 19 females; mean age = 9.7 years). Half of the students from each grade level were randomly assigned to either the explicit training condition or the implicit training condition. All groups had 4 students and the groups consisted of a heterogeneous sample of students. Thus, there was a total of 6 groups in the explicit condition and 6 groups in the implicit condition. Consent forms were obtained from all the parents for all students who participated in this study (see Appendix A).

Materials

Famous Artists Unit

As part of their normal classroom learning, all students participated in a unit on famous artists (see Appendix B) that ran for a period of 8 days. Each session was approximately 60 minutes. As part of their cooperative learning experience, all students explored the many aspects and facts related to six famous artists and their lives. Each group of students, using the group investigation model of cooperative learning, was responsible for completing a
written project. The group project involved providing a life account of each of the artists (Van Gogh, Rembrandt, Monet, Da Vinci, Picasso, Gauguin) using the information and resources supplied by the researcher (listed in Appendix B).

One copy of each account was laminated on cards measuring 28 cm x 36 cm, and rotated from group to group for a period of 6 days. Students had approximately 60 minutes to complete the following tasks for each artist. After cooperatively reading the account, team members were to describe three to five facts about the artist's family life and background. Secondly, students were asked to describe three to five facts about the artist's style of painting, including what and/or whom he liked to paint. Group members were also required to identify and describe three of the artist's most famous paintings and then give three additional interesting facts about the artist. Finally, students were instructed to illustrate some important part of the painter's life.

Each group was encouraged to present the information about the artists in a variety of ways including webs, charts and mind maps. Students also received an additional 60-minute session to complete a title page, table of contents, and finish any incomplete work from the previous six sessions.

Explicit Instruction Training Sessions

Prior to the start of the famous artists unit, students in the experimental condition participated in seven training sessions that involved the explicit teaching and modeling of the essential components of cooperative learning. Each training session was approximately 50 minutes (one session per day) and
occurred over 7 days. Once the seven sessions were complete, these students took part in three teambuilding activities (see Appendix C). These activities provided students with the opportunity to practise and reinforce the cooperative skills that were explicitly taught in the seven training sessions. Each teambuilding activity was approximately 50 minutes, one activity per day. Thus, students in the explicit training condition completed a total of 10 training sessions.

Implicit Instruction Training Sessions

Students in the implicit group were involved in 10 teambuilding activities over 10 ten days (see Appendix D). These simple activities of approximately 50 minutes, one activity per day, provided an opportunity for students to become familiar with one another, begin to trust each other and be exposed to the cooperative elements that have been associated with working in groups. Like the explicit training sessions, the implicit sessions were conducted and supervised by the researcher and both conditions received the same amount of instructional training time.

Attitudinal Survey

Following the completion of the famous artists unit, all students completed an attitudinal survey related to their beliefs and feelings about cooperative learning and working collaboratively in groups (listed in Appendix E). This survey took approximately 30 minutes to complete. The survey consisted of two
parts. Part A required the students to rate 20 statements using the scale, strongly disagree, disagree, neutral, agree, strongly agree. The students were asked to circle one number that reflected how the statement best described them. For example, given the statement, "I enjoy sharing my ideas in groupwork", if a student strongly agreed with this, the number 5 was circled. If however, the student strongly disagreed with this statement, then the number 1 was circled. The number 2 was circled when students only disagreed, the number 3 was circled when students felt ambivalent about the statement, and the number 4 was circled when students agreed with the statement, but not strongly. "I respect everyone's opinion in this group" and "There are many people in this class who bother me" were two other examples of the 20 statements used in Part A of the attitudinal survey.

Part B of the survey required the students to complete the following open-ended statements in two to three sentences: "What I have learned about cooperative learning. What I have learned about others. What I have learned about myself. The best thing about cooperative learning is/was. The worst thing about cooperative learning is/was."

Academic Test

In addition to the survey, each student completed a pencil and paper test measuring his/her knowledge of the famous artists unit. This test (see Appendix F) took approximately 50 minutes to complete and was administered the day following the attitudinal survey. The test was divided into four sections. The first
section contained six different phrases, each describing one of the six artists studied in the famous artists unit. Students were asked to match the phrase that best described the artist by writing the correct letter beside the artist's name. For example, for the phrase, "Cubism was made famous by this painter", the letter A should have been written on line beside the name Picasso.

The next section involved matching a famous painting to the artist who painted it. Six different famous painting titles were listed, along with the six different artists studied in the unit. As in the first section, students were instructed to put the correct letter (foreach painting title) on the line beside the artist's name. For example, for the famous painting, Mona Lisa, the letter D should have been written on the line beside the artist Da Vinci.

The third section consisted of 10 statements about the six artists studied. Students were asked to write true or false after each statement. Some examples of the statements were, "The Rose Period is when Picasso painted many roses"; "Monet spent most of his time in school drawing funny pictures" and "Van Gogh was a very happy and peaceful artist who lived until he was 88."

The final section of the academic test required students to list three styles from any of the six artists studied that helped make their paintings unique and famous. Students were given a brief explanation that stated, "In our unit, we studied many different styles and forms that the artists used to make their paintings unique and famous. One such style was to use brush strokes that gave everything a feeling of movement." Three blank lines were provided for the
students to write their answers directly below the question. For every question answered correctly one mark was given, for a possible total score of 25 marks.

Procedure

In November of 1996, all grades 4 and 5 students involved in the present study received either explicit or implicit training of cooperative learning. The training sessions were delivered by combining the three explicit groups at the grade 4 level and the three explicit groups at the grade 5 level into one class for their one-hour training sessions. Similarly, the remaining six implicit groups from the Grade 4 and Grade 5 classes were combined into one class during their one hour training sessions. Once the 10 sessions of training were complete for both conditions, both groups began a unit of study on six famous artists. During these eight sessions, all groups from the grade 4 level worked in the same class, as did all groups from the grade 5 level. Following the completion of the famous artists unit, students were administered the attitudinal survey and academic test (session eight).

Explicit Instruction Training Sessions

The explicit instruction training consisted of a total of 10 sessions. The first seven sessions provided the explicit teaching and modeling of the essential components of cooperative learning. Students then took part in three teambuilding activities that reinforced the cooperative skills that were explicitly taught in the seven training sessions.
After seating the students in their team groups, the first session introduced cooperative learning. In this initial session, student outcomes included distinguishing among the three types of learning (individual, competitive, cooperative) and role playing the three types of learning styles in their assigned groups. Students listed the different characteristics of each learning style and became familiar with why, when and where to use the various learning styles through whole-group discussion. Specifically, discussion focused on the need to work individually in some test situations, competition in sports and often academics, and the importance of learning through collaboration in the classroom.

Session two centered on the development of social skills. Students explored the importance of developing trust, care and commitment toward their group members and provided a list of social interactive skills needed to work effectively as a group. They demonstrated what the various skills looked like, sounded like and how to apply the skills to specific situations. Students were then given the opportunity to role play and model various cooperative skills through short skits. Finally, in their groups, students selected 10 primary skills to focus on during their cooperative time together.

Session three investigated the meaning of positive interdependence and the many ways it has been structured in cooperative activities. Students modelled several types of positive interdependence following reading and class discussion about each type. Students then examined the importance of forming their groups at the beginning of each session quickly and quietly and listed the
four steps for getting into their groups. Students were given an opportunity to practise getting into their groups and were timed by using a stopwatch for incentive purposes.

Session four examined the importance of each group member having an equal and shared role through class discussion and experiencing a variety of roles by modeling several kinds in their groups. Students were also asked to distinguish between working roles and social roles by creating a web of different roles for each category.

Session five investigated various cooperative learning structures (Think-Pair-Share; Say and Switch; Roundtable/Roundrobin; Three-Step Interview; Four Corners; Group Investigation/Learning Together). Students gained a better understanding of the specific step-by-step procedures to follow when participating in cooperative group work and were provided with an opportunity to role play and model some of these structures in their groups.

Session six outlined the meaning of individual accountability and five variables for motivating team members. Students spent time role playing different situations that displayed motivation and other situations that demonstrated a lack of individual accountability.

Session seven examined the importance of evaluation in cooperative learning and the various forms that it involves (self, group, teacher). Next, students performed a simple group activity (designing an original product) and then evaluated themselves and their group using various evaluation forms.
The last three sessions of the explicit instruction consisted of three simple teambuilding activities. This provided an opportunity for the teams to put into practice and reinforce some of the cooperative concepts, strategies and skills they acquired in the first seven training sessions. The first teambuilding activity enabled team members to become more familiar with some of the interests and favourite activities of each member in their group. The second activity involved team members trying to discover aspects they had in common with each other. The third teambuilding activity was more complex. Team members had to design a plasticine boat that would hold as many marbles as possible without sinking. All three teambuilding activities followed many of the cooperative structures introduced in session five and concluded with each group completing various evaluation forms.

**Implicit Instruction Training Sessions**

The implicit instruction training consisted of 10 sessions. Each session included a teambuilding activity, with student outcomes related to the essential components of cooperative learning. Students completed a team evaluation form at the conclusion of the activity. Several examples of positive interdependence types were introduced and reinforced in a number of the teambuilding activities including simulation, sequence, importance of roles and establishing a mutual identity.

After seating the students in their team groups, the first teambuilding session introduced the three styles of learning and the essential elements of
social interactive skills through whole-class discussion. This introductory
discussion took approximately 40 minutes. Before the initial warm-up activity
began, students were reminded to practise the social skills previously discussed
(active listening, staying on task and taking turns) during the activity. After a
brief discussion of evaluation and its purpose in cooperative learning, team
members completed an evaluation form based on what they had just
experienced during the activity.

Teambuilding activity two reinforced the cooperative concepts taught in
activity one. This simple activity involved students discovering commonalities
that they had with their teammates. The third teambuilding activity incorporated
a cooperative structure (three-step interview). Students in this activity were
looking for concepts they had in common with each other and the objective was
for team members to establish a mutual identity by forming a name based on the
last three activities.

Outcomes for the fourth teambuilding activity included students listing four
steps for getting into groups quickly and quietly, and using the cooperative
structure, think-pair-share, to discover a variety of facts about each team
member. The next activity, question and answer interviews, incorporated the
importance of roles in cooperative learning by each team member taking a
different role (recorder, interviewer, responder, noise monitor) following the
three-step interview structure. Students took turns responding to four general
questions. For example, "What makes you happy?"
Activity six involved a more complex structure, Four Corners, and the reinforcement of the importance of roles and social skills previously taught. Students were asked to design a plasticine boat that would hold as many marbles as possible without sinking, similar to the tenth explicit training session.

Teambuilding activity seven and eight both took two sessions to complete. They emphasized the importance of being accountable to a group and the importance of equal participation among all team members. Students were also introduced to the roundtable and jigsaw structures in these last two activities. Activity seven asked the students to design an original product and activity eight instructed the students to develop a plan for survival after being stranded on a deserted island for a specified length of time.

Famous Artists Unit

After completing either the explicit or implicit training session, students began to study a unit on six famous artists. All participating grade 4 students were now being given instructions for this unit in their original classroom, as were the grade 5 students.

At the beginning of the first session, students were provided with the guidelines, procedures and requirements for the completion of their team project. The five required tasks concerning each artist were written on chart paper and displayed on the blackboard, each session. During this first session, students were informed that they would complete an individual test on the content and material studied during the unit.
At the start of each session, each team received a different card describing the life account of an artist. They were instructed to read the card as a group and then complete the five tasks listed on the chart paper. At the conclusion of the session, all project work was placed in a folder and collected by the researcher. This format was followed for six sessions, providing each team with an opportunity to read, research and answer the five required tasks for each of the six artists. During the six sessions allotted to complete the artist project, very limited discussion occurred between the researcher and the students. Students received an additional session to complete a title page, table of contents and finish up any incomplete work from the previous six sessions.

**Attitudinal Survey**

Before students completed the attitudinal survey, they received a thorough explanation about how the scale was to be used when responding to the 20 items. The importance of being honest and expressing a true opinion or belief was strongly reinforced with the students before they began the survey. Similarly, when completing the five statements pertaining to thoughts about cooperative learning, students were strongly encouraged to write down their sincere beliefs regardless of whether they were positive or negative. No discussion amongst students was allowed during the completion of the survey. The survey took approximately 20 minutes to complete.
Academic Test

Following the completion of the attitudinal survey, students were administered an academic test related to the material covered in the famous artists unit. Aside from the information found on the six life-account cards of the artists, no new information was introduced on the test. The design of the test included 6 matching phrases, 6 matching paintings, 10 true or false statements, and three fill in the blanks, for a total score of 25 marks. Prior to the start of the test, students were provided with a simplified demonstration of how to complete the matching section of the test. This brief example was done on the blackboard in front of the class, to eliminate any confusion concerning the procedure for the matching questions. Students were instructed not to share answers during the test and all tests were collected at the end of the hour-long session.

As well, students were asked not to place their names on the survey measuring beliefs and attitudes related to cooperative learning or the unit test measuring academic performance, but instead were assigned a numerical code according to which experimental condition they were in. All collected information was stored in a locked area and after all the data had been analyzed, the surveys were destroyed. The performances of individual children were not discussed to ensure participant confidentiality.

Famous Artists Project

Following the completion of the Famous Artists Projects, all 12 group projects were collected for scoring purposes. The projects were scored using six
subscales: completion of answers, elaboration of answers, creativity, organization, illustrations and appearance. Each subscale was scored using a rubric (see Appendix G). The range of scores was from zero to 5 for each subscale for a possible total score of 30 for all six criteria. To achieve a score of 5 for “completeness of answers” it was expected that student groups would complete all of the questions outlined in the project requirements. “Elaboration of answers” involved going beyond the requirements of the tasks and providing additional information that was not specifically requested in the project requirements. Student groups received a score of 5 if elaboration of tasks occurred consistently throughout the project.

The “creativity” component expected students to provide a variety of ways to represent the required answers. For instance, the use of webs, charts and diagrams for each of the tasks would enable a group to receive a score of 5. If the project included a title page, table of contents, questions in logical order and easily identified, student groups would receive a rating of 5 for the “organization” subscale. If the project included properly coloured, titled and labelled illustrations for each of the six famous artists, clearly demonstrating detail and effort, a rating of 5 would be given for the “illustrations” subscale. Finally, the sixth component, “appearance”, referred to the overall look of the project. A score of 5 would be given if the student group clearly exhibited neat handwriting and underlining throughout the entire project.

All 12 group projects were scored by two independent raters, both using the same rubrics assessment tool. Rater One was the researcher. Rater Two
was an experienced teacher teaching at the school where the research was being conducted. This teacher has 30 years teaching experience with a strong background and knowledge base in cooperative learning and explicit teaching instruction. All of the projects were marked on the same day. Rater One marked the six grade 4 groups first, while Rater Two was marking the six Grade 5 groups. When complete, the Raters switched the groups for marking. Both raters were unaware of which groups were in the explicit or implicit conditions.

Data Analysis

The data from the dependent measures were analyzed using a one-way ANOVA. The Tukey-Kramer HSD test was used to carry out posthoc analysis. The analysis was used to determine whether there were any significant effects for the dependent variables (attitudes, individual achievement and group achievement) between the two conditions. It was expected that the group receiving explicit instruction in cooperative learning would experience more positive attitudes toward cooperative learning and higher achievement scores on a unit test and group project than the group receiving implicit instruction in cooperative learning.

Limitations of Methodology

The first limitation of the present study was the small sample size (n = 48). A control group of students who worked individually on completing the famous artists unit was not possible. A control group could have been used to
see if there were any significant differences, not only between the explicit condition and implicit conditions, but between each condition and the control group. If significant differences were found between a control group and the implicit condition, it could provide further support and reaffirm the validity of cooperative learning as a classroom strategy.

All the dependent measures and explicit and implicit training sessions were designed and developed by the researcher. The researcher was also responsible for delivering the training sessions, the attitudinal survey, the academic test and designing the rubric for assessing the group projects. Because the researcher was so heavily involved in the design and delivering of this experiment, experimental bias may be a limiting factor in the methodology. However, by analyzing the data using a one-way ANOVA and the Tukey-Kramer HSD test for posthoc analyses, it was expected that these scoring measures would adjust for this possible bias.

Finally, the wide range of academic abilities and behavioural concerns that often is a part of any group of children, may have been another limitation to this study. Although students were randomly assigned to groups, in this particular student population there was an unusually high number of students with special needs in the areas of academics and behaviour. The friction and high degree of difficulty students have experienced in the past in interacting with each other in a positive fashion, may impede academic achievement and deter favourable attitudes when working with others.
CHAPTER FOUR: RESULTS

Introduction

The results from this study are presented in three sections. First, the findings from the Attitudinal Survey are presented. Next, the findings from the Academic Test and the Famous Artists Projects are presented. The data from the dependent measures were analyzed using a one-way ANOVA. The Tukey-Kramer HSD test was used for posthoc analyses. These analyses determined whether there were any significant changes in the dependent variables between the explicit and implicit learning conditions.

Attitudinal Survey

The Attitudinal Survey consisted of two main components. The first component constituted 20 statements focusing on students' attitudes about cooperative learning. Subjects were asked to rate each statement from a scale of 1 to 5 where 1 indicated strongly disagree and 5 indicated strongly agree. The second component consisted of open-ended statements about cooperative learning. Briefly, these statements reviewed students' thoughts and beliefs about cooperative learning itself. Responses to each open-ended statement were scored as either positive or negative. Basically, positive statements were those that implied students' learning had increased as a function of cooperative learning. The students' positive statements reflected a better attitude about working in groups and working with others, while negative statements were those that implied little or no learning had
taken place as a function of cooperative learning, as well as little or no enjoyment with working in groups. Table 1 lists the means and standard deviations for each of the 20 statements as a function of experimental condition. Table 2 lists the means and standard deviations for the positive and negative scores for each open-ended statement as a function of the experimental condition.

Likert Scale Statements

For the Attitudinal Survey, there was a significant main effect for the total score, $F(1,45)=5.12$, $p<.05$. Specifically, students in the explicit training condition expressed more favourable attitudes toward cooperative learning than students in the implicit training condition, $g=1.60$, $p<.05$. Each of the 20 attitudinal statements was analyzed individually to determine the exact pattern of response differences between students in the explicit cooperative learning group and those in the implicit cooperative learning group. For learning well in groups, there was a significant effect for condition, $F(1,45)=20.96$, $p<.05$. Specifically, students in the explicit condition agreed more strongly with the statement, "I learn well when working in cooperative groups" than did students in the implicit condition, $g=3.23$, $p<.05$.

For staying on task, there was a significant main effect for condition $F(1,45)=12.12$, $p<.05$. Students in the explicit condition agreed more strongly with the statement, "I stay on task during groupwork" than did students in the implicit condition, $g=2.50$, $p<.05$.

For accepting group members, there was a significant main effect for condition $F(1,45)=4.52$, $p<.05$. Specifically, students in the explicit condition agreed more strongly with the statement, "I accept every member of my group for their
Table 1

Means and Standard Deviation for Attitudinal Survey (Likert Scale Statements) as a Function of Experimental Conditions.

<table>
<thead>
<tr>
<th>Statements</th>
<th>Explicit Training Condition</th>
<th>Implicit Training Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>I learn well in cooperative groups.</td>
<td>M 4.65</td>
<td>M 3.70</td>
</tr>
<tr>
<td></td>
<td>SD .57</td>
<td>SD .82</td>
</tr>
<tr>
<td>I know how to work cooperatively.</td>
<td>M 4.43</td>
<td>M 4.26</td>
</tr>
<tr>
<td></td>
<td>SD .51</td>
<td>SD .96</td>
</tr>
<tr>
<td>I could work with anyone in this class.</td>
<td>M 3.87</td>
<td>M 3.48</td>
</tr>
<tr>
<td></td>
<td>SD .97</td>
<td>SD 1.16</td>
</tr>
<tr>
<td>I respect everyone's opinion.</td>
<td>M 4.70</td>
<td>M 4.48</td>
</tr>
<tr>
<td></td>
<td>SD .63</td>
<td>SD .79</td>
</tr>
<tr>
<td>I respond constructively to others' ideas.</td>
<td>M 4.43</td>
<td>M 4.17</td>
</tr>
<tr>
<td></td>
<td>SD .66</td>
<td>SD .78</td>
</tr>
<tr>
<td>I like when others do most of the work.</td>
<td>M 1.26</td>
<td>M 1.43</td>
</tr>
<tr>
<td></td>
<td>SD .86</td>
<td>SD .95</td>
</tr>
<tr>
<td>Many classmates bother me.</td>
<td>M 2.74</td>
<td>M 3.13</td>
</tr>
<tr>
<td></td>
<td>SD 1.29</td>
<td>SD 1.49</td>
</tr>
<tr>
<td>I am not embarrassed to share ideas.</td>
<td>M 4.65</td>
<td>M 4.39</td>
</tr>
<tr>
<td></td>
<td>SD .88</td>
<td>SD 1.23</td>
</tr>
<tr>
<td>I stay on task during groupwork.</td>
<td>M 4.57</td>
<td>M 3.78</td>
</tr>
<tr>
<td></td>
<td>SD .66</td>
<td>SD .85</td>
</tr>
<tr>
<td>Cooperative learning is fun.</td>
<td>M 4.83</td>
<td>M 4.48</td>
</tr>
<tr>
<td></td>
<td>SD .65</td>
<td>SD 1.16</td>
</tr>
<tr>
<td>Statements</td>
<td>Explicit Training Condition</td>
<td>Implicit Training Condition</td>
</tr>
<tr>
<td>-------------------------------------------------</td>
<td>----------------------------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td>I look forward to groupwork.</td>
<td>M 4.61</td>
<td>M 4.39</td>
</tr>
<tr>
<td></td>
<td>SD .58</td>
<td>SD .89</td>
</tr>
<tr>
<td>I enjoy sharing my ideas.</td>
<td>M 4.43</td>
<td>M 4.26</td>
</tr>
<tr>
<td></td>
<td>SD .66</td>
<td>SD .92</td>
</tr>
<tr>
<td>Completing our task is challenging.</td>
<td>M 3.70</td>
<td>M 3.74</td>
</tr>
<tr>
<td></td>
<td>SD 1.18</td>
<td>SD 1.57</td>
</tr>
<tr>
<td>I often waste time when in groups.</td>
<td>M 2.14</td>
<td>M 2.30</td>
</tr>
<tr>
<td></td>
<td>SD 1.56</td>
<td>SD 1.46</td>
</tr>
<tr>
<td>I enjoy helping others in my group.</td>
<td>M 4.74</td>
<td>M 4.48</td>
</tr>
<tr>
<td></td>
<td>SD .86</td>
<td>SD .95</td>
</tr>
<tr>
<td>I wish we could work in groups more often.</td>
<td>M 4.57</td>
<td>M 4.26</td>
</tr>
<tr>
<td></td>
<td>SD .66</td>
<td>SD 1.25</td>
</tr>
<tr>
<td>I am now better at solving conflicts.</td>
<td>M 4.13</td>
<td>M 3.70</td>
</tr>
<tr>
<td></td>
<td>SD .97</td>
<td>SD 1.36</td>
</tr>
<tr>
<td>I accept every member of my group.</td>
<td>M 4.83</td>
<td>M 4.26</td>
</tr>
<tr>
<td></td>
<td>SD .39</td>
<td>SD 1.21</td>
</tr>
<tr>
<td>Knowing how to cooperate will help me at my future job.</td>
<td>M 4.48</td>
<td>M 4.52</td>
</tr>
<tr>
<td></td>
<td>SD .79</td>
<td>SD .95</td>
</tr>
<tr>
<td>I learn through listening to others.</td>
<td>M 4.39</td>
<td>M 3.96</td>
</tr>
<tr>
<td></td>
<td>SD .66</td>
<td>SD 1.33</td>
</tr>
<tr>
<td>Total Score of Attitudinal Survey</td>
<td>M 82.17</td>
<td>M 77.17</td>
</tr>
<tr>
<td></td>
<td>SD 4.34</td>
<td>SD 9.67</td>
</tr>
</tbody>
</table>
Table 2

Means and Standard Deviation for Attitudinal Survey (Open-Ended Statements) as a Function of Experimental Conditions

<table>
<thead>
<tr>
<th>Open-Ended Positive Statements</th>
<th>Explicit Training Condition</th>
<th>Implicit Training Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>What I have learned about cooperative learning.</td>
<td>M 1.22</td>
<td>M 1.04</td>
</tr>
<tr>
<td></td>
<td>SD .42</td>
<td>SD .64</td>
</tr>
<tr>
<td>What I have learned about others.</td>
<td>M 1.13</td>
<td>M .83</td>
</tr>
<tr>
<td></td>
<td>SD .55</td>
<td>SD .49</td>
</tr>
<tr>
<td>What I have learned about myself.</td>
<td>M 1.00</td>
<td>M .83</td>
</tr>
<tr>
<td></td>
<td>SD .52</td>
<td>SD .49</td>
</tr>
<tr>
<td>The best thing about working in groups is.</td>
<td>M 1.00</td>
<td>M 1.00</td>
</tr>
<tr>
<td></td>
<td>SD .52</td>
<td>SD .43</td>
</tr>
<tr>
<td>The worst thing about working in groups is.</td>
<td>M .52</td>
<td>M .39</td>
</tr>
<tr>
<td></td>
<td>SD .51</td>
<td>SD .50</td>
</tr>
<tr>
<td>Total Number of Positive Statements</td>
<td>M 4.83</td>
<td>M 4.13</td>
</tr>
<tr>
<td></td>
<td>SD 1.50</td>
<td>SD 1.94</td>
</tr>
</tbody>
</table>

(table continues)
<table>
<thead>
<tr>
<th>Open-Ended Negative Statements</th>
<th>Explicit Training Condition</th>
<th>Implicit Training Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>.00</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>.00</td>
</tr>
<tr>
<td>What I have learned about cooperative learning.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>What I have learned about others.</td>
<td>M</td>
<td>.04</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>.21</td>
</tr>
<tr>
<td>What I have learned about myself.</td>
<td>M</td>
<td>.00</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>.00</td>
</tr>
<tr>
<td>The best thing about working in groups is.</td>
<td>M</td>
<td>.00</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>.00</td>
</tr>
<tr>
<td>The worst thing about working in groups is.</td>
<td>M</td>
<td>.39</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>.50</td>
</tr>
<tr>
<td>Total Number of Negative Statements</td>
<td>M</td>
<td>.43</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>.59</td>
</tr>
</tbody>
</table>
contributions to our task" than students in the implicit condition, g=1.52, p<.05. The remaining statements which addressed the issues of helping others, resolving conflicts, sharing ideas, respecting everyone's opinion and learning from other members, did not differ significantly as a function of experimental condition, largest F(1,45)=1.98, p>.05.

Open-Ended Statements

For the combined negative responses to the open-ended statements about cooperative learning there was a significant main effect, F(1,45)=9.15, p<.05. Overall, students in the explicit condition made significantly fewer negative statements than did students in the implicit condition, g=2.17, p<.05. There were significant main effects for condition on three of the five open-ended statements. For the first open-ended statement, "What I have learned about cooperative learning", negative responses such as "I don't know what I learned" were less prevalent among students in the explicit condition than among those in the implicit condition, F(1,45)=3.24, p<.05, g=1.99, p<.05. Similarly, in the second and third open-ended statements, "What I have learned about others" and "What I have learned about myself", negative responses such as "Nothing", "Sometimes they have trouble" and "Sometimes they are mean" were also less frequently reported by students in the explicit condition than by students in the implicit condition, F(1,45)=3.14, g=1.30, p<.05 and F(1,45)=6.11, g=1.78, p<.05 respectively. Statements such as, "Some people don't listen and they just talk to others", "I never learned anything", "It's hard to work together sometimes" and "I don't know" were
less prevalent among students in the explicit condition than among students in the explicit condition.

There was significant main effect for positive responses to the open-ended statement, "What I have learned about others", $F(1,45)=3.94$, $p<.05$. Positive responses such as, "All different people have different ideas", "To accept everyone's differences", "That everyone has different feelings and different talents" and "They help you when you're having trouble" were more prevalent among students in the explicit condition than among those in the implicit condition, $g=1.38$, $p<.05$. The remaining four open-ended statements did not show a significant difference between the two conditions.

Academic Test

The Academic Test consisted of four sections. The matching phrases test required students to match the phrase that best described each of the six artists studied. The matching paintings test asked students to match a famous painting to the artist who painted it. The true/false statements consisted of 10 statements about the six artists studied. Students were asked to respond to each statement as either true or false. The fill-in-the-blank questions required students to list three styles from any of the six artists studied that helped make their paintings unique and famous. Table 3 lists the means and standard deviations for each section as a function of experimental condition.

For the matching phrases test, the main effect for condition approached significance, $F(1,45)=3.20$, $p>.05$, critical $g=1.27$, $p<.08$. For the matching paintings
Table 3

Means and Standard Deviations for Academic Test as a Function of Experimental Conditions.

<table>
<thead>
<tr>
<th>Components of Academic Test</th>
<th>Explicit Training Condition</th>
<th>Implicit Training Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Matching Phrases Test A</td>
<td>M 2.91</td>
<td>1.91</td>
</tr>
<tr>
<td></td>
<td>SD 2.23</td>
<td>1.47</td>
</tr>
<tr>
<td>Matching Paintings Test B</td>
<td>M 2.83</td>
<td>2.57</td>
</tr>
<tr>
<td></td>
<td>SD 1.34</td>
<td>1.47</td>
</tr>
<tr>
<td>True/False Statements Test C</td>
<td>M 7.61</td>
<td>7.26</td>
</tr>
<tr>
<td></td>
<td>SD 1.90</td>
<td>1.60</td>
</tr>
<tr>
<td>Fill-in the-Blank Test D</td>
<td>M 1.48</td>
<td>1.35</td>
</tr>
<tr>
<td></td>
<td>SD 1.16</td>
<td>.88</td>
</tr>
<tr>
<td>Total Test Score</td>
<td>M 14.83</td>
<td>12.96</td>
</tr>
<tr>
<td></td>
<td>SD 4.53</td>
<td>2.88</td>
</tr>
</tbody>
</table>
test, the main effect for condition was not significant, $F(1,45)=.40, p>.05$. There was no significant main effect for the true/false statements, $F(1,45)=.45, p>.05$. For the fill-in-the-blank section, the main effect for condition was not significant, $F(1,45)=.18, p>.05$. Finally, there was no significant main effect for total test score, $F(1,45)=2.79, p>.05$.

Famous Artists Projects

The Famous Artists Projects measured six different components including, completeness of answers, elaboration of answers, creativity, organization, illustrations and appearance. Each component was rated through means of a rubrics with a score ranging from zero to 5. Students received a score of zero for completeness of answers if none of the questions were complete, to a range of 5 when all the questions had been answered. To receive a score of zero for the elaboration component, students would have not elaborated on any of the required answers or added any additional information for each question. A score of 5 was given if students elaborated on all of the answers. For the creativity component, students received a score of zero if there were no charts, webs, borders or uniqueness in the representation of answers. Student groups received a score of 5 if they represented their answers in a variety of ways (e.g., through charts, webs timelines). If pupils showed no organizational skills, lacking a table of contents, order and identification of answers, they were given a zero for the organization component. When answers were easily identified in an organized, logical format, student groups received a rating of 5. A score of zero for illustrations was given if student groups had no illustrations, ranging to a score of 5 if student groups had
several illustrations that were labelled with excellent detail and titled. A score of zero for the appearance component was given if the student groups' work appeared messy in all sections, no underlining and clearly lacked effort, ranging to a score of 5 for very neat, underlined work demonstrating an excellent effort.

Each set of components was scored by two independent raters. Rater 1 was the researcher and Rater 2 was an experienced teacher familiar with cooperative learning and explicit teaching strategies. Means and standard deviations for each of the six sections for both raters are listed in Table 4 as a function of independent rater and experimental conditions.

When the first rater's scores were analyzed, there was a significant main effect for condition on the total project scores, \( F(1,45)=71.91, p<.05 \). Students in the explicit condition received significantly higher total scores than did students in the implicit condition, \( g=6.00, p<.05 \). Specifically, there were significant main effects for condition on the measures, completion of answers, elaboration of answers, organization, illustration and appearance of the project, \( F(1,45)=56.26, F(1,45)=52.86, F(1,45)=56.62, F(1,45)=41.25 \) and \( F(1,45)=39.15 \) respectively, all \( ps<.05 \). Students in the explicit condition scored significantly higher on these components of their project than did students in the implicit condition, smallest \( g=4.40, p<.05 \).

The same pattern was found when the second rater's scores were analyzed. The main effect for condition was significant for the components of completion of answers, elaboration of answers, organization, illustration and appearance of the project, \( F(1,45)=49.79, F(1,45)=30.86, F(1,45)=76.85, F(1,45)=40.27 \) and
Table 4

Means and Standard Deviations for Famous Artists Projects as a Function of
Experimental Conditions.

<table>
<thead>
<tr>
<th>Subscales of Famous Artists Project (Rater 1)</th>
<th>Explicit Training Condition</th>
<th>Implicit Training Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Completeness of Answers</td>
<td>M 4.87</td>
<td>M 3.35</td>
</tr>
<tr>
<td></td>
<td>SD .34</td>
<td>SD .91</td>
</tr>
<tr>
<td>Elaboration of Answers</td>
<td>M 3.78</td>
<td>M 1.72</td>
</tr>
<tr>
<td></td>
<td>SD .56</td>
<td>SD 1.24</td>
</tr>
<tr>
<td>Creativity</td>
<td>M 3.09</td>
<td>M 2.67</td>
</tr>
<tr>
<td></td>
<td>SD 1.06</td>
<td>SD 1.02</td>
</tr>
<tr>
<td>Organization</td>
<td>M 4.43</td>
<td>M 2.24</td>
</tr>
<tr>
<td></td>
<td>SD .46</td>
<td>SD 1.32</td>
</tr>
<tr>
<td>Illustrations</td>
<td>M 3.65</td>
<td>M 3.00</td>
</tr>
<tr>
<td></td>
<td>SD .38</td>
<td>SD .30</td>
</tr>
<tr>
<td>Appearance</td>
<td>M 3.91</td>
<td>M 2.57</td>
</tr>
<tr>
<td></td>
<td>SD .63</td>
<td>SD .82</td>
</tr>
<tr>
<td>Total Project Score</td>
<td>M 23.74</td>
<td>M 15.48</td>
</tr>
<tr>
<td></td>
<td>SD 2.43</td>
<td>SD 3.99</td>
</tr>
</tbody>
</table>

(table continues)
<table>
<thead>
<tr>
<th>Subscales of Famous Artists Project (Rater 2)</th>
<th>Explicit Training Condition</th>
<th>Implicit Training Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Completion of Answers</td>
<td>M: 4.30, SD: .90</td>
<td>M: 2.63, SD: .69</td>
</tr>
<tr>
<td>Elaboration of Answers</td>
<td>M: 3.74, SD: 1.21</td>
<td>M: 1.85, SD: 1.09</td>
</tr>
<tr>
<td>Creativity</td>
<td>M: 2.33, SD: 1.30</td>
<td>M: 1.78, SD: 1.13</td>
</tr>
<tr>
<td>Organization</td>
<td>M: 3.85, SD: .65</td>
<td>M: 2.02, SD: .76</td>
</tr>
<tr>
<td>Illustrations</td>
<td>M: 3.09, SD: .47</td>
<td>M: 2.30, SD: .36</td>
</tr>
<tr>
<td>Appearance</td>
<td>M: 3.43, SD: .46</td>
<td>M: 2.13, SD: .63</td>
</tr>
<tr>
<td>Total Project Score</td>
<td>M: 20.48, SD: 3.78</td>
<td>M: 12.57, SD: 2.98</td>
</tr>
</tbody>
</table>
$F(1, 45) = 64.92$ respectively, all $p_s < .05$. The second rater gave students in the explicit condition significantly greater project scores than students in the implicit condition, smallest $g = 3.94$, $p < .05$. There was a significant main effect for the second rater’s total project scores, $F(1, 45) = 62.20$, $p < .05$. Students in the explicit condition scored significantly higher than did students in the implicit condition, $g = 5.57$, $p < .05$. 
CHAPTER FIVE: SUMMARY AND RECOMMENDATIONS

Summary

The varying degrees and effectiveness of instructional strategies continues to be a focal point for discussion in educational circles. The implementation of cooperative learning continues to be widespread in educational settings, with research indicating that benefits are dependent on the quality of group interaction (Battistich et al., 1993). Recent research has begun to focus on how explicit instruction can affect the quality of learning cooperatively in groups (Kahl & Woloshyn, 1994; Stevens et al., 1991).

The purpose of this study was to determine whether receiving explicit instruction in cooperative learning would positively affect students' achievement scores on a unit test and group project relative to receiving implicit instruction. Another purpose was to determine whether receiving explicit instruction would generate more favourable beliefs and positive attitudes towards cooperative learning relative to receiving implicit instruction. Prior to administering the academic test and attitudinal survey, students were given either explicit or implicit training in cooperative learning skills, and then asked to complete a group project focusing on six famous artists. Briefly, explicit and implicit training differed in that explicit training of cooperative skills involved teaching students why the strategy is of value, when/where/how the strategy can be used, modeling the strategy and providing opportunities for students to practice individual skills necessary for effective collaboration (Gaskins & Elliot, 1991). Implicit training of cooperative skills
involved less preparatory instruction than explicit training. Students were provided informal opportunities to get to know their group members through simple teambuilding activities, building a sense of trust and acceptance among team members.

**Attitudinal Survey**

Students receiving explicit training instruction in cooperative learning demonstrated more favourable and positive attitudes about cooperative learning compared to students who received implicit training instruction. Specifically, students in the explicit condition believed that they were more successful at staying on task when they worked cooperatively, accepted every member in their group for their unique contributions, and believed that they learned more when they worked cooperatively. This finding confirms previous research that more positive classroom experiences and social interactions exist when the quality of working cooperatively in a group is high (Battistich et al., 1993; Lazarowitz et al., 1994; Stevens et al., 1991).

During the sessions involving training for explicit instruction, students were provided with a detailed explanation as to what cooperative learning is and why it is important to have a clear understanding of the components involved. Students also received examples of when cooperative learning would be of value to them and how to implement the strategy. The instructor modeled cooperative strategies and shared personal experiences. This was followed by a discussion involving when and where it is appropriate to utilize the cooperative strategy. Because students in the explicit training group were explicitly taught what it means to work cooperatively
...
in a group, and were provided with several opportunities to model and practice the skills needed to effectively interact with group members, they enjoyed and found working in groups a much more pleasant experience.

The second part of the attitudinal survey involved students completing open-ended statements related to their cooperative learning experiences. Overall, students who received instruction in the explicit condition were found to have significantly fewer negative responses related to working with others than did students who received implicit instruction. When asked to complete the statement, "What I have learned about others", positive responses were also more prevalent for those students with explicit training than for those with implicit training. Students in the explicit condition often made comments that reflected their enjoyment and increased learning when working in cooperative groups as compared to those made by students in the implicit condition. Students in the implicit condition reported to have learned very little, if anything, about cooperative learning as a process. These findings are consistent with previous studies (e.g., Lazarowitz et al., 1994) when it was found that cooperative learning provided social and personal advantages for students. In this study, students who received explicit training in how to cooperate during group work felt more cohesiveness amongst group members and perhaps a stronger commitment to achieving their goals. The notion of positive interdependence, where students felt linked to other team members, was clearly at work for students in the explicit condition.
Academic Test

Following the completion of the Famous Artists Projects, students from both conditions were administered a test measuring their knowledge of related materials. Although the section measuring the matching of famous artists to a descriptive phrase approached significance, no significant differences were found on any of the four sections that comprised the test. This is somewhat surprising since much of the past research investigating the effects of cooperative learning on students' academic achievement clearly supports academic gains and higher achievement for cooperative learning groups receiving explicit instruction relative to those students receiving traditional instruction (Kahl & Woloshyn, 1994; Stevens et al., 1991). This study did not have a sample population large enough to warrant a third condition, where students could have been randomly assigned to a group where there was no cooperative learning at all.

A large portion of the academic test was matching that involved cued recall as opposed to free recall. Cued recall provides for the opportunity to obtain clues from the test phrases or statements, as well as a substantial probability of guessing and being correct. Free recall is often more demanding because there are no clues to the answer and less of a probability of guessing correctly. In the case of this particular academic test, there were only 3 out of 25 questions that required free recall (the fill-in-the-blank section). Consequently, students had the opportunity to guess on 22 of the 25 questions, providing a possible explanation for why differences did not emerge across the two conditions.
Famous Artists Projects

Students were provided seven sessions of approximately one hour to complete a group project related to six famous artists. During each session, each group of students was required to complete a number of tasks for each artist, one artist per session. Specifically, students were asked to describe the artist's family life and background, the artist's style of painting, three of the artist's most famous paintings and three additional facts about the artist. The projects were then collected and scored by two independent raters using six different subscales (i.e., completeness of answers, elaboration of answers, creativity, organization, illustrations and appearance). Both raters, the researcher and an experienced teacher, found a significant difference for the total project scores. Students trained explicitly in cooperative learning had considerably higher total project scores compared to students trained implicitly in cooperative learning. Furthermore, both raters found significant differences for the experimental group for five of the six subscales. Specifically, students in the explicit condition received higher scores for completion of answers, elaboration of answers, organization, illustration and appearance of the project compared to students in the implicit condition. The creativity subscale was the only component in which students' scores did not differ.

These very impressive findings support previous research demonstrating substantial effects on students' achievement following cooperative learning experiences. The research conducted by Johnson et al. (1992) had similar findings. In this study, students involved in the cooperative condition achieved higher scores on an assignment than those students participating in the individual
condition. Learning improved in the cooperative condition because pupils had a clear picture of how to behave with others when working in groups. As well, feedback processes were in place which provided valuable insight about productivity and how well the group was functioning. Johnson et al. (1992) concluded that the more aware people are of what they are experiencing, the more insight they will have regarding the role they play in whether they are successful or not.

Of more importance to this study however, is that when cooperative learning was combined with explicit instruction, even greater achievement gains were obtained than when instruction was only implicitly provided. The work of Stevens et al. (1991) supports this finding. Stevens et al. found that students who were given explicit instruction in reading comprehension in a cooperative condition scored descriptively higher on posttest measures than those students who received reading comprehension instruction on an individual basis. Clearly, the process of linking cooperative learning with explicit instruction generates a very effective and powerful instructional process. The active student involvement that is fundamental when teaching through explicit instruction enables and enhances meaningful learning experiences for the child. Because it is essential that the components of cooperative learning be taught to students before they begin working together, explicit instruction provides an ideal means to teach the concepts of collaborating with others. The significant results in this study indicate that students in the explicit condition may have experienced more support and guidance from their group members. Based on the group scores for the famous artists projects, students in the
explicit condition experienced not only "what it means to work as a team" to achieve a common goal, but also succeeded and then celebrated their successes as a team.

Implications for Education

Based on the results of this study it seems essential for educators to become more familiar with the instructional approaches that maximize the benefits associated with cooperative learning. Researchers conclude that cooperative learning is an effective means for children to learn and achieve. Consequently, it is critical that the classroom teacher providing that means has a thorough understanding of what processes are involved in implementing a successful approach to collaboration among peers. Specifically then, teachers need to ensure that the element of positive interdependence, where all group members put forth a joint effort to enhance group success, occurs. Group members also need to be individually accountable and take ownership for contributing a fair share to the group's success. It is essential that basic social skills and face-to-face interaction among team members be developed, as well as providing opportunities for reviewing and reflecting on how well a group is functioning. Furthermore, the results of this study demonstrate the effectiveness of teaching these important components of cooperative learning through explicit instruction.

It seems that some teachers lack sufficient training in leading small cooperative groups successfully. Most often this results in students being placed in groups without adequate preparation (Sharan, 1994 as cited in Battistich et al., 1993). Little preparation when working with others can often lead to negative
interaction among peers that impedes the promotion of higher student learning and academic achievement and promotes negative social interactions. When negative outcomes result following the implementation of cooperative learning in the classroom, teachers are likely to become frustrated and abandon this effective classroom learning strategy. More than likely, teachers will then resort to a more traditional approach to instructing, and "chalkup" cooperative learning as an "unpleasant experience".

To remedy any negative experiences for teachers who are attempting to implement cooperative learning in the classrooms for their first time, formal training could be provided with respect to the quality of students' experiences in cooperative groups and effective methods of implementation. Specifically, it is suggested that before teachers begin to use the cooperative learning approach in their classrooms they have a fairly solid understanding of the essential components of cooperative learning. In conjunction with this, teachers need to be fully aware of the differences between explicit or direct instruction and implicit instruction. Most importantly, once teachers have acquired this valuable knowledge, it would be incumbent on them to impart to their students the necessary cooperative skills through explicit instruction over an extended period of time before students begin to work cooperatively on a common goal or task.

Although many cooperative learning workshops and seminars are offered regularly to professionals in the educational field, the current focus on what "cooperative learning is" needs to shift or diversify to "how it should be taught to students." Providing in-services and workshops that allow time for teachers to not
only model the essential cooperative skills, but acquire the necessary skills needed
to explicitly instruct their own classrooms, should be the essence of any professional
development program relating to cooperative learning. In-service needs to be
ongoing, as the acquisition and thorough understanding of the main components of
cooperative learning and explicit instruction take considerable time. Aside from in-
servicing, perhaps a buddy or mentoring system for teachers may be practical and
worthwhile. Teachers interested in learning about these effective and valuable
teaching strategies could partner with other teachers, either on staff or in area
schools close by, who have a solid understanding of the elements of cooperative
learning and explicit instruction. It is time to break through the isolated cubicles that
educators work in day after day (Gamson, 1994). As educators, we need to begin to
share and consolidate the wealth of knowledge and expertise that we possess in
various areas of our teaching practices, just as we ask our students to do when they
work in collaborative settings. One recommendation for implementation is to
consider cooperative learning as an actual unit of study (as done in this study).
Providing classroom teachers with a cooperative learning unit and the means to
know how it should be implemented (or helping them develop such a unit) could be
a focal point of workshops and seminars. A final recommendation is to provide the
opportunity for new teachers to discover and master the essential elements of
cooperative learning and explicit instruction in preservice education. This would be
an ideal setting for enthusiastic teachers to gain an enhanced awareness of the
wide variety of effective and valuable teaching strategies and instructions that
promote improved learning in the classroom.
Recommendations for Further Research

Ideally, this study should involve three conditions: cooperative explicit learning, cooperative implicit learning and traditional instruction. Although significant differences were found in results between the explicit and implicit conditions when comparing students' performances in the group artist projects, it would be interesting to compare individual test results with a control group where cooperative learning was not taught. It would be expected that not only would the explicit condition show significantly better results in student performance, as the case in this study, but the implicit condition would also display significantly better results in student performance when compared to the control group.

Although students were aware that they would be writing a test on the related unit materials, students seemed more involved in completing the requirements for the group project and less concerned about committing the information about each artist to memory, during the daily sessions. One session for studying purposes was more than likely insufficient to recall the required factual information about six different artists, especially for children at a grade 4/5 level. Perhaps building in a 10-minute study session at the end of each work period to collectively, as a group, review and reinforce the ideas, facts and concepts students had gathered, may enhance student recall during a test situation.

A qualitative approach would be another area to consider for future research. Observing student behaviour and social skills would enable the researcher to examine the effects of explicit instruction compared to implicit instruction.
Specifically, during the sessions provided for group projects, the researcher could observe how children from both conditions interacted in group settings and observe which social skills groups of students internalized and put into practice when collaborating with each other. Interviewing students before, during and after the group project sessions, about the drawbacks, advantages, the development of social skills, and if in fact any learning has taken place with respect to working with others, may be a worthwhile endeavour in cooperative learning research. Asking questions that gave the researcher some indication of how students felt about themselves after spending time with group members and if the classroom environment had changed, may assist the researcher in determining if explicit instruction is an effective means to teach cooperative learning skills.

Although substantial research testifies to the positive effects of cooperative learning on student academic performances and behaviour, research on the effects of explicit instruction and the effects of combining explicit instruction and cooperative learning is relatively less. Because this approach to instruction is unfamiliar for most teachers, yet has clearly been shown to be a valid method of instruction, additional research in the area of explicit instruction for other educational programs is suggested.
REFERENCES


Appendix A

Letter of Consent

Dear Parents:

Beginning November 4, a study involving Grade 4 and 5 students will be conducted at Assumption School investigating the effects of training students in cooperative learning skills and concepts. This study is part of my Masters thesis (M. Ed.) at Brock University. For the past ten years I have been teaching for the Lincoln County Separate School Board. The purpose of this letter is to request your permission for your child's participation in the study.

Past studies have shown that cooperative learning is a very effective teaching strategy that promotes and facilitates students’ learning of new material as well as the acquisition of valuable social skills. Explicit training of cooperative skills involves teaching the students when/where/how the strategy can be used and carried out, modeling the strategy and providing opportunities for students to practice the strategy. Implicit training of cooperative skills entails less preparatory instruction where students are provided informal opportunities to get to know their team members, yet still are informed about the essential processes required when working cooperatively. I am interested in investigating whether explicitly training students in the essential components of cooperative learning will have a positive effect on learning and completing goals more so than implicit training of cooperative skills.

Each child will be involved in twenty sessions of approximately one hour in duration. The first ten sessions will involve training the students in the cooperative strategy. Half of the students will be randomly assigned to the explicit condition, half to the implicit condition. In the final ten sessions, all students will participate in a cooperative group studying a unit on famous artists where they will be exploring the many aspects and facts related to several famous artists and their lives. Each group of students will be responsible for completing a written project providing a life account of each of the artists using the information and resources provided by the experimenter. All students will be asked to complete a cooperative learning survey and a unit test following the completion of the artist unit. During the sessions involving the famous artist unit, behavioural observations of the students related to cooperative learning skills will be recorded.

All collected data from this study will be stored anonymously in order to protect the privacy of students. After analysis, all the data will be destroyed. Although group averages may be reported, the performances of the individual children will not be discussed to ensure participant confidentiality.

Please return the attached consent form to me at Assumption School as soon as possible indicating whether you give your permission or not. Please note that it is important that you return the form in either case. Thank you for taking the time to read this letter and for sending the permission form back to school. If you have any questions or concerns about this study, please feel free to call me at school or leave a message for me to contact you.

Sincerely,

Mrs. S. Mitchell

(Vera Wokoshyn, Faculty Advisor, Brock University)
Explicit/Implicit Training of Cooperative Learning

I have read the letter of explanation describing the study regarding explicit/implicit training of cooperative learning. I have been informed that with my permission my child will be involved in training sessions of cooperative skills and completing a unit on famous artists. I understand that my child will be working in groups of four and will be asked to individually complete a survey, a short unit test on famous artists and be observed for behaviours related to cooperative learning skills.

I am aware that my child's participation in this study is entirely voluntary, may stop at any time without penalty and all information will be kept confidential so that any reports of the results will not be associated with my name or my child's name.

I AGREE to have my child participate in the study.

Parent's signature __________________________ Date __________________
Student's signature (Optional) __________________________

I DO NOT AGREE to have my child participate in the study.

Parent's signature __________________________ Date __________________
Student's signature (Optional) __________________________

I wish to receive a summary of the completed study.  YES  NO
Appendix B

Famous Artists

The following six artists will be studied in detail by each group:
Rembrandt, Monet, Da Vinci, Van Gogh, Picasso, Gauguin. Each group will be
given approximately one page of information on cards about each artist. The
information cards will be rotated from group to group, one artist per day, for a
period of six days. Students will have approximately 70 minutes to complete the
following task for each artist:

1) Describe the artist's family life and background. (3-5 facts)
2) Describe the artist's style of painting, what and who he liked to paint. (3-5
facts)
3) Name and describe three of the artist's most famous paintings.
4) Give three additional interesting facts about the artist using the resource
books provided.
5) Illustrate some important part of the painter's life.

Each group will be encouraged to present the information about the artists in a
variety of ways: a web, chart form, mind map. A title page and table of contents
are also required.
Rembrandt

Rembrandt was one of the greatest artists of all time. He lived and painted in Holland. He was born in 1606 and died in 1669. Rembrandt began his painting studies at age 15. Rembrandt liked to paint at home and spend lots of time with his family. Rembrandt's wife was named Saskia and together they had a son named Titus. Rembrandt's wife died and he got remarried to a woman named Hendrickje. They had a baby girl named Cornelia.

Even though there were no cameras in Rembrandt's time, we know what he looked like because he was always painting pictures of himself. For fun, Rembrandt would dress up in bright clothes and jewels and then paint himself. He used his family and relatives as models in many of his works. He also enjoyed painting dogs, elephants, flowers, birds and other forms of nature. Rembrandt is best known for his paintings of people, but he also did paintings in which the scenery is the most important part of the picture, such as the famous painting titled, "The Mill".

Rembrandt is well known for his style of using light and dark paints. The darkness in his paintings helps to make the light parts stand out. Sometimes Rembrandt would paint very smoothly, and sometimes he would pile on the paint. In his famous painting, "The Feast of Belshazzar" Rembrandt did both. The people in the painting are smooth looking where the gold and jewels Belshazzar is wearing are loaded with thick paint.
Most of the people Rembrandt painted wore black clothes and wanted to look very serious. It was the style of the day. Rembrandt painted many scenes from the Bible as well. One of Rembrandt’s greatest paintings was “The Night Watch”, a painting of a group of soldiers. Rembrandt made the people he painted seem alive, even more real than a photograph could. That’s why many people think he’s the greatest painter who ever lived.
Leonardo da Vinci

Leonardo da Vinci was born in the small Italian town of Vinci in 1452. He kept the name of his town for his own last name. When Leonardo was small he drew pictures of plants, insects, flowers, animals and birds. Leonardo da Vinci lived during a time when people all over Europe were becoming interested in art. This period of time was known as the Renaissance. When Leonardo was a teenager, his father took him to Florence, Italy, one of the greatest art cities in Europe, to learn about being an artist.

Leonardo was a great artist; however he also became famous because of his abilities as an architect, musician, sculptor, scientist, inventor and mathematician. Leonardo painted beautiful portraits. He was one of the first artists to paint the mother of Jesus smiling and playing with her baby as opposed to looking very serious.

One of Leonardo's most important paintings in the history of art was called "The Virgin of the Rocks". Most artists would outline their people and use very flat backgrounds; however Leonardo painted the figures in this picture without outlining them. He made the shadowy part of the people blend into a mysterious background and the other part of the people have light on them making the figures seem three-dimensional.

Leonardo often used dark shadows and light colors to make what he was painting seem to come toward you and away from the painting. His paintings seem real and he gave the people in his paintings a feeling of movement and being alive. Leonardo made his backgrounds in his paintings very beautiful and
a special part of the whole picture. He always attempted to make his paintings as perfect and close to nature as possible.

Leonardo da Vinci's greatest work was done for the wall of a dining room in a church in Milan. The painting was titled "The Last Supper" which illustrates Jesus with the twelve apostles. Leonardo did a superb job at giving the men sitting around the table an appearance and feeling of movement. Today parts of "The Last Supper" are hard to see because the paint is chipping off.

Leonardo's most famous painting, the "Mona Lisa", is known for her mysterious smile. The "Mona Lisa" is always looking right into your eyes, no matter where you stand. Leonardo painted only a few pictures after the "Mona Lisa". He spent the last years of his life in France making notes and drawings about his discoveries, as a guest of the King of France. He died there in 1519.
Pablo Picasso

Pablo Picasso was one of the greatest artists of the twentieth century. He was born in Spain in 1881 and died in France in 1973. Picasso's father was an art teacher and wanted his son to become a great artist too. When Picasso was nineteen, he left Spain and went to Paris, France to paint.

Sometimes Picasso would paint things that looked very flat. Other times he would paint things that looked very three-dimensional. When Picasso's best friend died, his paintings changed. He began to paint with lots of blue and made all the people in his paintings look lonely and sad, such as in the painting, "The Old Guitarist". This was known as "The Blue Period" for Picasso.

When Picasso met a girl named Fernade and fell in love, his "Blue Period" ended and soon a cheerier color began showing up in his paintings. This was the start of the "Rose Period". He also started painting happier things during this time, such a circus people and animals.

"Cubism" was the next style of painting that Picasso developed and made famous. Cubism is one of the most important periods in the history of modern art where paintings were made to look like they had been broken up into little cubes. For years, artists tried very hard to paint things to look real. Then Picasso came along and began to paint people and things that didn't look the way people and things were supposed to look. When Picasso started painting people who had eyes and noses in the wrong places, such as the "Boy in the
Sailor Suit with Butterfly Net", people started to think he had gone too far. Another painting that demonstrated the style of cubism was called the "Three Musicians".

Picasso's most powerful and serious painting was during the civil war in Spain. The small town of Guernica was destroyed by bombs and Picasso became very angry and wanted to show the world how foolish war was through a painting named "Guernica", named after the town that was destroyed. Picasso used darker colors, cubism and lots of expression to get his angry feelings across in this huge painting. It is twelve feet high and twenty-five feet wide!

Picasso lived to be 92 years old. The thing that made him such a great artist was his originality and he had the imagination to try new and different things throughout his life.
Claude Monet

Claude Monet was born in Paris, France, in 1840. When he was young he moved to a town right by the sea where ships from all over the world would stop to pick up supplies. Monet’s father owned a grocery store that sold supplies to the sailors and shipping companies. Monet did not do very well in school; however he had a very good sense of humor and spent most of his time drawing funny pictures. Monet made money by selling these drawings and eventually tried painting.

Monet tried the idea of painting outdoors and he loved it. Many of Monet’s paintings are of boats, oceans, ponds and lakes. Monet even fixed up a boat as a floating studio. He sailed up and down rivers stopping to paint wherever he liked.

The Salon was a place in Paris where people came from all over the world to see famous artists’ paintings. Monet entered his paintings often. Some were accepted and some weren’t. “Women in the Garden” was one of Monet’s paintings that didn’t make it into the Salon gallery. In this painting Monet used his favorite model, Camille, for all four women in this painting. Monet and Camille got married and had a son named Jean.

Monet helped invent an important style of painting called impressionism. This style of painting usually showed scenes of everyday life and nature, where the colors, shadows and light in the paintings are as real as possible, such as the paintings titled “The Cliff Walk Pourville”, “The Japanese Footbridge” and
null
"Haystacks". The exciting brush strokes and colors in Monet's paintings give you the feeling of being right there at the moment he made the painting.

Claude Monet lived to be 86 years old. He spent his last ten years painting scenes of his water garden, such as "Water Lilies". When Monet was older, people finally began to appreciate his now famous paintings.
Paul Gauguin

Paul Gauguin was born in Paris in 1848. His father was a journalist and his mother was the daughter of a famous writer. When Gauguin was very young his father died. He and his mother moved to Lima, Peru when he was three for four years old. Gauguin spent several years as a sailor before going to work in a Paris bank as a stock broker. At the age of 25 he married Mette Gaad, who was Danish. In the next ten years they had five children and eventually settled on the Islands of the South Pacific.

It was during the time that Gauguin began to raise a family that he began to paint. First he joined the impressionists, a group of painters with their own style of painting. "Breton Peasant Girls" is an example of Gauguin’s impressionist period of painting. Short strokes of different colors are placed next to each other to imitate how color appears in nature.

Later he developed his own style which was strongly influenced by Japanese art. "We Greet Thee, Mary" is a painting full of rich color that tells a happy and peaceful story. Using flat forms of color like the Japanese wood-block prints which he studied, Gauguin shows us that he saw mothers as Madonnas.

Gauguin’s paintings are beautiful scenes of the landscape and the peaceful ways of people, which shows us the contentment he found in his work. Gauguin often took many sea voyages and painted scenes such as "Scene at the Port of Dieppe". In "The Poor Fisherman" Gauguin shows us the basic
required items for a fisherman's life: the boat and the sea. Gauguin used large blocks of bold colors to make a strong, simple statement about life at sea and on the islands where he lived.

Many of Gauguin's paintings reflect his love for the simple people of Tahiti where he lived. He spent most of his productive years living among the people of Tahiti trying to capture their easy ways and their primitive beauty as seen in the painting "Arearea".
Vincent Van Gogh

Vincent Van Gogh was born in Holland in 1853. Unlike most artists, Van Gogh didn't become a painter until he was an adult. He tried teaching, working in a bookstore and preaching like his dad. Not liking any of these jobs very much he decided to go to art school to learn everything he could about painting.

His first drawings were of the poor people he used to help when he was a preacher. The colors in Van Gogh's early paintings such as the "Potato Eaters", are dark and sad so that everyone knew how hard the lives of the poor people were. When Van Gogh discovered Japanese artwork he began to use bright colors, strong lines and shapes.

In 1886, Van Gogh moved to Paris, France to join his younger brother Theo. Theo, who was in the business of buying and selling paintings, introduced Van Gogh to many famous artists. Van Gogh always had problems during his life with the way he felt. Sometimes he was too angry to paint, other times he was too sad to paint. One time he became so angry and upset he cut off part of his ear. He painted a picture of himself when he did this titled, "Self-Portrait with Bandaged Ear". When he felt good, he painted better than ever. He made the stars in the "The Starry Night" seem like they were really shining.

Van Gogh usually put his paint on very thick such as in the famous paintings, "Sunflowers". Sometimes he painted so fast he didn't even mix the colors. He was always running out and sometimes he stopped buying food so
that he could buy more paint. Van Gogh made his paintings seem alive with color. His brush strokes gave everything a feeling of movement.

Van Gogh only sold a few paintings while he was alive. People were not used to his bright "moving" pictures in the late 1890's. Van Gogh was not well and by the time he was 37 he shot himself and died. Today his paintings are some of the most popular in the world.
Appendix C

Explicit Instruction Training Sessions

Session One

(Introduction to Cooperative Learning)

**Student Outcomes:**

- Students will be able to distinguish between the three types of learning styles (Individual, Competitive, Cooperative).
- Students will role play in their assigned groups the three types of learning styles.
- Students will be able to list the different characteristics of each learning style.
- Students will become familiar with when and where to use the various learning styles through whole group discussion.
- Students will become familiar with the phrases: "Me instead of you" (competitive); "Me alone" (individual); "We as well as me" (cooperative) and be able to model these three learning styles in short group skits.

**Materials Used:**

The following characteristics of each of the learning styles will be listed on the blackboard and discussed in whole group:
Competitive:
* If I achieve my goal you cannot achieve yours and vice versa.
* My success depends on doing better than you.
* I do not want competitors to do as well as me
* Often my concern for myself is greater than my concern for others.

Individualistic:
* My achieving my goal is unrelated to you achieving yours.
* My success does not depend on the success or failure of others.
* I am accountable only to myself.

Cooperative:
* I can attain my goal only if you attain yours.
* Group success depends on the success of all members.
* We care about the success and effort of our group.
* We have a greater concern for one another and not just ourselves.
Session Two
(Social Skills)

**Student Outcomes:**

- Students will explore the importance of developing trust, care and commitment toward group members enabling the development of group cohesiveness and productive cooperative groupwork.
- Students will provide a list of social interaction skills needed to work effectively together.
- Students will be able to demonstrate what the skill looks like and sounds like and how to apply it to specific situations.
- Students will role play and model various cooperative skills through short skits.
- Students will fill out a "social skill T-chart" in their group.
- Students will select ten primary skills to focus on during their cooperative time together.
Session Three

(Positive Interdependence Type (P.I.T.)/ Formation of Groups)

**Student Outcomes:**

- Students will gain an understanding of positive interdependence and its role in cooperative learning activities.
- Students will explore several ways to structure positive interdependence through class discussion and oral reading of the meaning of each type of positive interdependence.
- Students will model several of the types of positive interdependence.
- Students will examine the importance of forming their groups quickly and quietly.
- Students will list four steps for getting into a group.
- Students will practice getting into their groups. Each group will be timed using a stopwatch for incentive purposes.

**Materials Used:**

Ways to Structure Positive Interdependence:

1. **Goal:** One common purpose is established. One team member achieves if all achieve.
2. **Incentive:** All teammates receive the same reward if every teammate succeeds.
3. **Resource**: One set of shared material per group.

4. **Role**: Each member is assigned a role to be performed so that task may be successfully completed.

5. **Sequence**: The goal is divided into sub-tasks and is usually performed in a set order.

6. **Simulation**: Teammates work through a hypothetical situation to succeed or survive.

7. **Outside Force**: Groups compete against an outside force (the clock or another team).

8. **Environmental**: Group members are bound together by the physical environment—"Nose to nose, toes to toes."

9. **Identity**: Teammates establish a mutual identity through a group name, flag, motto.

**Steps for getting into groups:**

1. Get any material you need from your desk.

2. Know where your group is located.

3. Set up your group so it is face-to-face interaction.

4. Move quickly and quietly on the signal.
Session Four
(The Importance of Roles)

Student Outcomes:
- Students will examine the importance of each group member having an equal and shared role through class discussion.
- Students will be able to distinguish between working roles and social roles by creating a web of different roles for each category.
- Students will be able to select appropriate roles required to accomplish a given goal successfully.
- Students will experience a variety of roles by modelling several kinds in their groups.

Materials Used:

Working Roles: reader, writer, cutter, summarizer, painter, proofreader, materials manager, checker, illustrator, artist.

Social Roles: encourager, observer, noise monitor, energizer, active listener, pacer.
Session Five
(Structures)

**Student Outcomes:**

- Students will gain an understanding of the specific step-by-step procedures to follow when participating in cooperative groupwork.
- Students will examine the various cooperative learning structures.
- Students will be provided with an opportunity to model and practice some of these structures in their groups.

**Materials Used:**

**Think-Pair-Share:** Team members privately think about the following question: "What are some ways our school could be a better one?" Team members then pair up with a partner to share their responses with one another.

**Say and Switch:** After identifying the discussion topic: "Ways to improve our eating habits" the first team member begins to respond while the other members listen. At a signal (clapping of hands by the instructor) roles switch and the second team member continues the first partner's line of thought before introducing her/his own new ideas. Several switches take place in a certain allotment of time.

**Roundtable/Roundrobin:** One team member responds to the written statement, "Physical Education is an important part of our day because..." on a piece of paper and then passes the paper and pencil to the team member on the left.
Each partner initials their contribution. The team's paper is then passed on to another group where any new ideas are added in a different colour pen.

**Three-Step Interview:** Team member A interviews Team member B using the following questions: 1. What is your favourite time of the day? 2. Who do you admire most? 3. If you had the ability to do anything in life, what would you be? Team member C records Team Member B's answers. Team member D keeps team members on task and following the important social skills required. Roles rotate after each interview ensuring that all members are given the opportunity to experience each role.

**Corners:** All students are posed the question, "If you were the leader of your country, which issue would be your top priority?" Each team member selects one of the following four dimensions in response to this question, posted in one of the four corners of the classroom: Poverty, Drug Abuse, Crime, Pollution. Each member moves to the appropriate corner for discussion and reasons for their choice. Representatives from each corner report their thinking back in their groups and then to the class:

**Learning Together:** This is the structure students will be following when completing the unit on famous artists. It involves the preparing of a single cohesive team product and students will be given time to experience this structure following the three teambuilding activities.
Session Six
(Individual Accountability and Motivation)

Student Outcomes:

- Students will gain an understanding of the concept of being accountable to a group.
- Students will explore the concept of "social loafing" and other reasons for not participating on an equal level with other team members through active role playing.
- Students will explore and model ways to promote individual accountability and motivate other team members to participate equally and become self-responsible learners.

Materials Used:

Five variables of motivation that students will role play and model in their groups:

Concern: Three groups will role play an environment where zero concern exists for each other and in essence zero learning will take place. The three other groups will role play how an appropriate level of concern for each other in a group will provide for optimal learning. The teacher will also provide a model for no concern and too much concern creating stress.
Interest: Providing interesting things that are personally meaningful tends to motivate and involve students more in teamwork. Students will discuss various roles that interest them most in group work and how to get members who are resistant to becoming involved more interested in achieving a given goal.

Meaning: The more the learning relates to the students' past, present, or future knowledge and experience, the greater chance the students will be motivated to become involved in the discussion and sharing of the learning. Three teams will role play a discussion involving a familiar topic, the importance of sports. The remaining teams will role play a discussion involving the topic of classical music. Results of both topic discussions and information exchanged will be represented in web form.

Knowledge of Results: By modelling feedback that is specific, supportive and immediate students will be more motivated to take personal responsibility for continued involvement in cooperative activities. Students will be given the opportunity to provide feedback to other groups based on the last activity completed.

Positive Feeling Tone: Demonstrating warmth, liking, acceptance and respect creates a pleasant atmosphere and a learning experience that students will more than likely want to continue. Teams will demonstrate positive and negative feeling tones through role playing and then reflect on their feelings about each.
Session Seven
(Evaluation)

Student Outcomes:
- Students will examine the importance of evaluation in cooperative learning and the various processes that it can involve: self, group, other group, teacher.
- Students will perform a simple group activity and then evaluate themselves and their group using various evaluation forms.

Materials Used:
See "Designing An Original Product" for the group activity.
See the following Evaluation Forms: My Contributions to the Team;
Self-Evaluation; Cooperative Team Pie.
Have students fill out the three evaluation forms after completing the activity.
Session Eight

Teambuilding Activity #1: Warming Up

This activity will enable team members to become more familiar with some of the interests and favourite activities of each group. Each group will construct a chart, dividing the chart into five columns. In the first column the following statements are to be written: favourite novel; a special time; an important issue; best memory; favourite sport; a vacationing spot; musical interests. The remaining four columns will have the team members' names. A sample chart will be drawn on the blackboard for groups to copy. Team members take turns interviewing each other using the three-step interview structure.

Team members complete evaluation form, "Team Evaluation".
Session Nine

Teambuilding Activity #2: Things We Have In Common

Provide each team with a blank tic-tac-toe box. Inside each small box instruct each team to write the following nine statements in any order:

1. Likes pizza 
2. Enjoys reading
3. Walks to school 
4. Has green eyes
5. Owns a pet 
6. Enjoys sports
7. Born outside of Canada 
8. Dislikes loud music
9. Has no brothers or sisters

Each team member signs their initials in the boxes for any statement that is true for him or her. A team “Tic-Tac-Toe” is scored when three boxes in the same row, column or diagonal are initialed by all teammates.

Next, students in their teams list several things they have in common with each other based on the following categories: Television Shows, Favourite Colours, Hobbies, Pets, Food, School Subjects, Family.

Based on the last two activities, students in each group come up with a team name.

Team Members to complete Evaluation Form, “My Contributions to the Team”.
Session Ten

Teambuilding Activity #3: Boat Construction

The purpose of this task is to design a plasticine boat that will hold as many marbles as possible for at least 10 seconds without sinking. Each member is assigned a role (designer, builder, tester, timer). Through discussion and suggestions, identify factors that determine the ability of the boat to hold the most marbles. Discussion will follow the Four Corners structure. Students will sketch out their ideas on paper, build the boat and then test the boat in a bucket of water. Marbles will be added one at a time. Re-design and re-sketch the boat, if necessary. Students will graph overall class results in their groups.

Team Members to complete Evaluation Form: "Self-Evaluation/Cooperative Team Pie".
Appendix D

Implicit Introduction Training Sessions

Teambuilding Activity One: Find Someone Who

**Student Outcomes:**

- Students will discuss the difference between the three types of learning styles (individual, competitive, cooperative).
- Students will be introduced to the essential elements of social skills related to cooperative learning with the opportunity to practise some of the basic social skills such as active listening, staying on task and taking turns.
- Students will discuss the importance of evaluation in cooperative learning and fill out an evaluation form.

In this warm-up activity students will begin to familiarize themselves with one another by finding someone in their group who knows the answer to a question on a worksheet provided. The questions are of a general interest about various things in the students' everyday lives. After finding someone who can answer the question, the person then signs the worksheet before the student moves on to find someone else to answer another question. Students in each group will look for any commonalities in their answers and present their findings to the class. After a brief discussion on evaluation and its purpose in cooperative learning, team members will complete the evaluation form, "Team Social Goal".
Teambuilding Activity Two: Student Tic-Tac-Toe

**Student Outcomes:**

- Students will be provided with an opportunity to practise the social skills and reinforce this essential element of cooperative learning.
- Students will review the different types of evaluation and complete an evaluation form.

Provide each team with a blank tic-tac-toe box. Inside each small box instruct each team to write the following nine statements in any order:

1. Likes pizza
2. Enjoys reading
3. Walks to school
4. Has green eyes
5. Owns a pet
6. Enjoys sports
7. Born outside of Canada
8. Dislikes loud music
9. Has no brothers or sisters

Each team member signs their initials in the boxes for any statement that is true for him or her. A team "Tic-Tac-Toe" is scored when three boxes in the same row, column or diagonal are initialed by all teammates.

Review different types of evaluation practices and then team members are to complete Evaluation Form, "Team Evaluation".
Teambuilding Activity Three: Things We Have In Common

Student Outcomes:

- Students will be provided with an opportunity to practise one of the many structures (Three-Step Interview) essential to cooperative learning skills.

- Students will establish a mutual identity (one type of positive interdependence) through a group name.

This activity will enable team members to become more familiar with some of the interests and favourite activities of each group member. Each group will construct a chart, dividing the chart into five columns. In the first column, the following statements are to be written: favourite novel; a special time; an important issue; best memory; favourite sport; a vacationing spot; musical interests. The remaining four columns will have the team members' names. A sample chart will be drawn on the blackboard for groups to copy. Team members take turns interviewing each other using the three-step interview structure.

Based on the last three sessions, students in each group will form a team name. Team Members are to complete Evaluation Form, "My Contributions to the Team".
Teambuilding Activity Four: Team Discovery

**Student Outcomes:**
- Students will discuss reasons and then list the procedures for getting into groups quickly and quietly.
- Students will follow the structure, Think-Pair-Share.

In this activity students individually write five statements about themselves on a separate piece of paper. Teammates then pair up with a partner to share their statements. Partners are asked to decide whether the statements are true or false. The team then shares all discoveries made and the correct number of answers for each member are then graphed on one chart.
Teambuilding Activity Five: Question and Answer Interviews

Student Outcomes:

- Students will be introduced to the importance of roles in cooperative learning.
- Students will practice the cooperative learning structure (Three-Step Interview).
- Students will observe and evaluate the social skills of another team.

Students divide a piece of paper into five columns. In the first column team member names are written and then at the top of the remaining columns, the following questions are written:

1. What makes you happy?
2. What do you find upsetting?
3. How would you spend a million dollars?
4. If you could travel anywhere, where would it be?

After discussing the importance of roles in cooperative learning, assign the following roles: Recorder, Interviewer, Responder, Noise Monitor. The team member interviewing asks a member to respond to the four questions, while the recorder writes the responder's answers on the chart. The noise monitor monitors his or her own team as well as observing the cooperative skills of another team in the classroom that they have been assigned to focus on. Rotate the roles. (A sample chart will be drawn on the blackboard for pupils to copy.) Students are to complete evaluation form, "Observation for Another Team".
Teambuilding Activity Six: Boat Construction

Student Outcomes:

- Students will practice another cooperative learning structure (Four Corners).
- Students will each take a role to complete the task, reinforcing the importance of roles in cooperative learning.
- Students will practice another type of positive interdependence by competing against an outside force (another group).

The purpose of this task is to design a plasticine boat that will hold as many marbles as possible for at least 10 seconds without sinking. Each member is assigned a role (designer, builder, tester, timer). Through the use of the Four Corners structure of cooperative learning, students will, through discussion and suggestions of other classmates, identify factors that determine the ability of the boat to hold the most marbles. Students will be instructed to sketch out their ideas on paper; build the boat; test the boat in a bucket of water; record the number of marbles it holds without sinking. Compare results with the rest of the class teams. Follow-up discussion on boat designs and factors contributing to the successfulness of the boat to hold the most marbles will take place.
Student Outcomes:

- Students will discuss the importance of being accountable to a group and equal participation among all team members.
- Students will follow the cooperative structure, Roundtable.
- Students will follow another type of positive interdependence, sequence, where the goal is divided into sub-tasks and is performed in a set order.

Before this activity begins, a discussion will take place exploring the importance of equal participation and every team member being accountable to their group. A list of ways to motivate group members to be an active, participating member of the group will be devised through class discussion.

In this teambuilding activity, team members have five minutes to list as many forms of transportation as they can imagine. There are no restrictions. The list is then passed on to the next group, where any new modes of transportation not already on the list may be added. Once the lists return to their original groups, students are instructed to circle the seventh item from the bottom of their list. Students are then asked to change and modify the form of transportation they circled, to become the best way to get to and home from school. Any improvements and all ideas are encouraged and accepted. A large drawing of
this new mode of transportation, with a list of some of its special and original features, are presented to the class. This activity will take two sessions to complete. Following the second session for this activity, the evaluation form, "Cooperative Team Pie" will be completed.
Teambuilding Activity Eight: Deserted Island

Student Outcomes:

- Students will be provided with an opportunity to reinforce the essential element of individual accountability and motivation in cooperative learning.
- Students will practice another type of positive interdependence, simulation, where teammates work through a hypothetical situation to succeed or survive.
- Students will follow the Jigsaw structure.

Students are told that they are stranded on a deserted island for a specified length of time. In their teams, they are instructed to initially brainstorm ways for survival, and the factors and elements involved. Using the jigsaw structure, team members will become experts in the following areas: Food/Water, Shelter/Clothing, Medicine/Health, Tools/Weapons. Each team should develop a plan for survival, assigning various roles and a list of jobs necessary to survive. A written report of the survival plan is then presented orally to the class. This teambuilding activity will take two sessions to complete.

Students will complete the evaluation form, "Group Mind Map".
Appendix E

Attitudinal Survey

Part A

Please rate each of the following statements using the scale:

(strongly disagree, disagree, neutral, agree, strongly agree)

1 2 3 4 5

Choose and circle one number to show how the statement describes you. For example, if you strongly disagree with a statement then you would circle 1. If you strongly agree with a statement then you would circle 5.

1. I learn well when working in cooperative groups.

2. I know how to work in a cooperative group.

3. I could work on a cooperative team with any person in this class.

4. I respect everyone's opinion in this group.

5. I respond to my teammates' ideas with only constructive criticism.

6. I like working in a group because other people do most of the work.

7. There are many people in this class who bother me.

8. I am not embarrassed to share my ideas in my group.

9. I stay on task during group work.

10. Cooperative learning is fun.

11. I look forward to the cooperative learning activities.

12. I enjoy sharing my ideas in groupwork.

Strongly Disagree Strongly Agree

1 2 3 4 5

For example, if you strongly disagree with a statement then you would circle 1. If you strongly agree with a statement then you would circle 5.
13. Completing our group task today was challenging.

14. I often waste time when working in a group.

15. I enjoy helping others in my group.

16. I wish we could work in groups more often.

17. I am better at solving conflicts now because of cooperative learning.

18. I accept every member of my group for their contributions to our task.

19. Cooperative learning will help me when I get older at my job.

20. I learn from other members in my group by carefully listening to what they say.
Part B

Please complete the following statements in 2-3 sentences:

1. What I have learned about cooperative learning:

2. What I have learned about others:

3. What I have learned about myself:

4. The best thing about cooperative learning is/was:

5. The worst thing about cooperative learning is/was:
null
Appendix F

Academic Test

The following phrases describe the six artists studied in our unit. Match the phrase that describes the artist. Write the correct letter on the line beside the artist's name.

Rembrandt
Da Vinci
Van Gogh
Monet
Gauguin
Picasso

A. Cubism was made famous by this painter.
B. This painter lived on the island of Tahiti.
C. This painter painted several pictures from his "boat" studio.
D. This painter painted himself in bright clothes and jewels.
E. This painter painted during the Renaissance Period of the 1400s.
F. This painter cut off part of his ear.

Match the famous painting to the Artist who painted it. Put the correct letter beside the artist's name.

Rembrandt
Da Vinci
Van Gogh
Monet
Gauguin
Picasso

A. "Women in the Garden"
B. "The Poor Fisherman"
C. "The Feast of Belshazzar"
D. "Mona Lisa"
E. "Sunflowers"
F. "Boy in the Sailor Suit with Butterfly Net"
True or False. Please write true or false on the blank line after each statement.

1. When Picasso's best friend died he painted with lots of blue. _________________
2. Da Vinci was one of the first artists to paint the mother of Jesus smiling and playing with her baby. _________________
3. Van Gogh was a very happy and peaceful artist who lived until he was 88. _________________
4. Monet spent most of his time in school drawing funny pictures. _________________
5. The “Salon” was a place in Paris where people came from all over to get their hair done. _________________
6. Cubism was a style of painting where artists painted with cubes of ice. _________________
7. Van Gogh was a preacher before he became a painter. _________________
8. Most of the people in Rembrandt’s paintings wore black clothes and wanted to look very serious. _________________
9. The Rose Period is when Picasso painted lots of roses. _________________
10. Today, parts of the painting “The Last Supper” by Da Vinci are hard to see because someone accidentally splashed water on it. _________________

In our unit, we studied the many different styles and forms that the artists used to make their paintings unique and famous. One such style was to use brush strokes that gave everything a feeling of movement. List three other styles from any of the artists studied that helped make their paintings unique and famous.
Appendix G

Rubric for Famous Artists Project

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Rubrics for Above Criteria

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<thead>
<tr>
<th>Score</th>
<th>1</th>
<th>3</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Completion</td>
<td>very few questions complete</td>
<td>most questions complete</td>
<td>all questions complete</td>
</tr>
<tr>
<td>Elaboration</td>
<td>very little elaboration on any answers</td>
<td>some elaboration on answers</td>
<td>elaboration throughout answers</td>
</tr>
<tr>
<td>Creativity</td>
<td>very few charts, webs, lacks uniqueness</td>
<td>some use of webs, charts, some</td>
<td>good use of webs, charts, uniquely</td>
</tr>
<tr>
<td></td>
<td></td>
<td>uniqueness</td>
<td>displayed</td>
</tr>
<tr>
<td>Organization</td>
<td>very little organization, no table of</td>
<td>fairly good organization, table of</td>
<td>excellent organization skills, orderly,</td>
</tr>
<tr>
<td></td>
<td>contents or title, lacks order, answers</td>
<td>contents, title, some</td>
<td>answers easily identified</td>
</tr>
<tr>
<td></td>
<td></td>
<td>order &amp; identification of answers</td>
<td></td>
</tr>
<tr>
<td>Illustrations</td>
<td>no colour, labels or titles, lacks</td>
<td>some pictures coloured, titled, good</td>
<td>all pictures coloured, excellent</td>
</tr>
<tr>
<td></td>
<td>detail, very few pictures</td>
<td>detail, one picture per artist</td>
<td>detail and effort, extra pictures</td>
</tr>
<tr>
<td>Appearance</td>
<td>no underlining, messy in most sections,</td>
<td>good attempts at being neat, some</td>
<td>very neat, all</td>
</tr>
<tr>
<td></td>
<td>lacks effort</td>
<td>effort noted</td>
<td>headings underlined, excellent</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>effort noted</td>
</tr>
<tr>
<td>Column 1</td>
<td>Column 2</td>
<td>Column 3</td>
<td></td>
</tr>
<tr>
<td>---------</td>
<td>---------</td>
<td>---------</td>
<td></td>
</tr>
<tr>
<td>Value 1</td>
<td>Value 2</td>
<td>Value 3</td>
<td></td>
</tr>
<tr>
<td>Value 4</td>
<td>Value 5</td>
<td>Value 6</td>
<td></td>
</tr>
</tbody>
</table>

Additional text that is not relevant to the table or diagram.