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The Effects of a Cooperative Learning Environment on Attitudes, Social Skills, and Processing of Baccalaureate Nursing Students

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THE EFFECTS OF A COOPERATIVE LEARNING ENVIRONMENT ON ATTITUDES, SOCIAL SKILLS, AND PROCESSING OF BACCALAUREATE NURSING STUDENTS

by

Mary J. Cairy

A Dissertation Submitted to the Faculty of The Graduate College in partial fulfillment of the requirements for the Degree of Doctor of Education Department of Educational Leadership

Western Michigan University Kalamazoo, Michigan December 1997
The purpose of this study was to examine the effect of a deliberate, planned cooperative learning environment on the attitudes, social skills, and processing of baccalaureate nursing students. A convenience sample of 43 students (Registered Nurses) randomly assigned to one of eight cooperative learning groups were the subjects for this study. Cooperative learning was used as a teaching methodology for the entire class of 15 weeks duration. The study sought to answer the following questions: (a) What effect does a deliberate, planned cooperative learning environment have on the attitudes of BSN (Baccalaureate of Science in Nursing) students toward group work? (b) What effect does a deliberate, planned cooperative learning environment have on the frequency of the BSN student’s social skills? and (c) What effect does a deliberate, planned cooperative learning environment have on the BSN student’s ability to process?

This study was a one group pretest-posttest design in which observations and testing were made before and after the treatment variable was introduced. Attitudes toward group work were measured using two different instruments pre- and immediately postintervention as well as 2 months later. Comfort in using social skills and the student’s perceptions of the usage of these same social skills were measured pre- and immediately postintervention. To document the frequency of social skills
when exhibited by each group member, faculty observations of each cooperative learning group were completed twice during the semester, utilizing a checklist of the six social skills. In measuring the student's ability to process, a series of two open-ended questions was utilized pre- and postintervention.

Attitudes, social skill usage, and comfort in usage improved ($p < .05$) from the beginning of the semester to the end of the semester. Attitudes remained at that level ($p < .05$) 2 months postintervention. The ability to process demonstrated improvement through the direction, specificity, and quality of change in the use of social skills. This study was based on the importance to higher education in producing educated, responsible, well-prepared people for the cooperative workplace. These affective cooperative skills are an essential component of this preparation.
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"Don’t think that a small group can’t change the world. Indeed, that’s the only way it can happen."

—Margaret Meade
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The process of writing this dissertation has been a truly cooperative learning experience. The following acknowledgments are for those who knowingly and unknowingly contributed to its composition. To the members of my committee, Dr. Uldis Smidchens, Dr. Katherine Manley, and especially my chair, Dr. Zoe Barley, I wish to thank you for your patience, encouragement, and guidance throughout the entire process. To Julie Coon, a wonderful friend who has walked with me through this entire venture, I thank you for listening, empathizing, and being a true peer. I thank my parents, Fidelis and Edgar Hanson, for instilling in me the importance of education and the desire to learn. And my husband, Jack, a teacher who continually provided encouragement and support, I would like to thank for exposing me to new teaching methodologies, new ideas, and new ways of thinking. But most of all, I want to thank him for the gift of time to complete this endeavor.

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Mary J. Cairy
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CHAPTER I

INTRODUCTION

It was the purpose of this study to examine the effect of a deliberate, planned cooperative learning environment on the attitudes, social skills and processing (ability to reflect on group experience) of baccalaureate nursing students.

Background of the Study

The American educational system has at its core the concept of competition. Our students over the years have competed for rank, rewards, slots in programs, and grades. When students compare themselves against others, the basis of competition, they run the risk of negatively affecting the development of positive self-esteem and feelings of high levels of confidence and worth (Rich, 1988). Much of this competitiveness can be linked to the attempt to overcome doubts about their own capabilities and compensate for low self-esteem (Kohn, 1986). Our educational system equates good grades with success and bad grades with failure, yet many educators continue to promote competition as a motivator and to promote its use to further high achievement. In addition, when students are competitive, they become isolated in their studying, protective of their knowledge and less willing to share resources. The present educational structure encourages competition at the expense of cooperation and is unlikely to be able to engage future generations of students or prepare them for the workplace of the next decade and beyond.
Nursing is no exception to the competitive climate in higher education. Students vie for grades, compete for places in programs with long waiting lists and are praised for their behavior by faculty, parents and other significant adults. Their learning takes a second place to the grades that they receive; their efforts deemed a failure if the grade they receive does not meet their expectations. As either an individualistic or competitive learner, they are less likely to form study groups, tutor less successful students, or form those bonds and shared values that allow for growth within and without the profession.

As our graduates move to the work place, they are asked to shift gears almost immediately and work with others instead of for themselves. The health system in which they will practice is a cooperative system in which several members from different health professions cooperate to plan and implement the care for patients. This professional role demands that they have as a part of their repertoire, those cooperative skills that will facilitate the planning for all of those under their care.

The investigation of effect of the use of cooperative learning as a teaching methodology is the focus of this study. The following research questions were explored:

1. What effect does a deliberate, planned cooperative learning environment have on the attitudes of Baccalaureate of Science in Nursing (BSN) students toward group work?

2. What effect does a deliberate, planned cooperative learning environment have on the frequency of the BSN student’s social skills (group maintenance functions)?
3. What effect does a deliberate, planned cooperative learning environment have on the BSN student's ability to process (reflect on own and other's group behaviors)?

Importance of Study

The role of higher education is to produce educated, responsible, well-prepared people for the workplace. The economic and technological realities of our society demand changes in both the workplace and the educational system that prepares the workforce (Wirth, 1993). There are gaps between the skills needed and the skills possessed by this workforce, presenting a challenge for higher education. In Michigan, an employability skills task force was given the charge to identify skills needed by today's workers. This task force identified three skill components for Michigan workers that were essential in order to compete today and in the future: (1) academic skills (including communication), (2) personal management skills, and (3) teamwork skills (Pestillo & Yokich, 1988). In the learning society of today, old styles of competition, division, and individualism must be replaced by cooperative learning and problem solving if we as a society are to compete in the global economy (Wirth, 1993).

Many organizations, as well as educational institutions, have adopted management approaches that require workers to have communication, group process, and critical thinking skills as well as technical skills for the occupation. These include health care organizations. Educational institutions and programs that continue to stress individual learning and/or competitive learning do little to close the gap between education and the employment setting. However, because 70–80% of occupations require a complex coordination of effort and ideas (Long, 1989), and
because the work force is composed of culturally, economically, and socially diverse 
individuals, instruction that promotes and develops skills in cooperation and 
teamwork is crucial. These same characteristics are sought for the health care setting 
where interdependence is necessary to plan and implement care for clients who see 
multiple practitioners.

The health care system for the next century will contain fewer solo 
practitioners and fewer solo facilities (Hillestad & Hawken, 1996). Health care will 
be achieved through multifacility systems requiring many different practitioners to 
work together in planning multifaceted care. As Hillestad and Hawken (1996) point 
out, nursing education will change as a result, with increasing emphasis on critical 
thinking, decision making, delegation, and teamwork. Hillestad and Hawken also see 
a focus on collaboration for the nursing profession with practice revolving around 
two types of team work:

One will be a provider team that consists of a professional nurse and a variety 
of multiskilled health care assistants and clerical staff. The other team will be 
responsible for the continuum of care for a larger, defined group of 
consumers. Included in this team will be primary care physicians and a limited 
number of specialty physicians. (pp. 132-133)

These practice parameters will demand that the nurse not only knows how to 
function as the leader of a group, but also as a member of a group. These future job 
requirements demand that the educational setting incorporate these skills in the 
curriculum. The teaching institution needs to go beyond just imparting knowledge. It 
does no good to educate a nurse if the nurse does not have the cooperative skills 
needed to apply the knowledge and technical skills in cooperative relationships on the 
job (Johnson, Johnson, & Smith, 1991). Meeting the employment requisite for which 
the student is being prepared requires that classroom experiences realistically reflect 
the realities of the society in which the students will work. This endeavor involves
teamwork in an educational program which supports students’ learning in cooperative environments.

Research studies on cooperative learning have been conducted for more than 25 years at the K–12 level; it is only in the last 7 or 8 years that serious attention has been paid to cooperative learning in higher education. With this in mind, some feel that authors and workshop presenters tend to oversimplify and overstate the research base for cooperative learning as it relates to students in the higher education setting (Cooper, 1996). Cooperative learning research at the college level is primarily limited to two categories: achievement (content mastery), and, on a much smaller scale, structured study periods with dyads. Little seems to be known regarding the interaction processes that occur in cooperative learning groups with adult learners or the reasons that inspire their achievements with this learning strategy. What is known about adult learners supports the use of small group interaction (Polson, 1993). Adults need support and encouragement when trying new skills (Brookfield, 1990) as well as an environment which is nonthreatening and encourages taking risks (Pratt, 1984). Adult learners need to feel a part of a learning community, which is fostered by small group interaction (Brookfield, 1990). In addition, active learning and seating arrangements which support interaction and discussion allow adults to integrate new information, build on experiences, and explore new ideas and skills (Polson, 1993). Content mastery rather than the process of cooperation has predominated in research in higher education leaving the whole area of cooperation development with little empirical data to support the application of cooperative learning in the college setting.

This study focused on the process of cooperative learning, primarily examining the student’s attitudes toward cooperative learning, the student’s
behavioral changes in social skills, and the effect of cooperative learning on the student's ability to process or reflect on her/his own behavior and that of the other group members. It involved both qualitative and quantitative data and measurements.

Definition of Terms

To provide a common basis for understanding, the following definitions are included for terms that are to be used in the study.

Cooperative learning group. The term cooperative learning group refers to students working interdependently to accomplish a mutual goal. Basic elements include positive interdependence, face-to-face interaction, individual accountability, interpersonal and small-group skills, and processing (Johnson, Johnson, & Holubec, 1993; Sharan & Hertz-Lazarowitz, 1980; Slavin, 1983, 1988).

Functions. The term functions refers to those behaviors directed purposefully toward building the group and toward helping it accomplish its task (Gorman, 1969, p. 57).

Group processing/processing. The term group processing or processing is used to describe the reflection of individuals and the group as a whole on a group session. It can be used to describe what member actions were helpful and unhelpful and to make decisions about what actions the group wants to continue or change (Johnson, Johnson, & Holubec, 1993).

Group work attitudes. The term group work attitudes is used to describe a set of attitudes toward group work as measured by the Group Work Attitude Inventory (Swartz, 1989).
Maintenance functions. The term maintenance functions refers to those behaviors that are directed purposefully toward building the group by building more of a group feeling, an intragroup respect, and rapport (Gorman, 1969, p. 59).

Nonfunctional behaviors. The term nonfunctional behaviors refers to those behaviors that do not assist the group in meeting its goals, but instead are more self-serving in nature and are aimed at meeting the needs of the individual within the group (Abercrombie, 1979, p. 13).

Task functions. The term task functions refers to those behaviors that are directed purposefully toward helping the group accomplish its task (Gorman, 1969, p. 58).

Summary

This chapter provides an introduction for the study. It also provides a statement of the problem in nursing education from which the research questions were identified. The significance of the study is discussed in terms of expectations in both the college classroom and in the work place after the formal education has been completed. A definition of terms to be used in the study provides a common basis for understanding.
CHAPTER II

REVIEW OF SELECTED LITERATURE

The purpose of this study was to examine the effects of a deliberate, planned cooperative learning environment on the attitudes, social skills, and processing of baccalaureate nursing students. The professional literature related to cooperative learning was reviewed within primary, secondary, and higher education, and more specifically, in nursing education. Prior to reviewing the research literature, a theoretical basis for this study is presented.

Theoretical Underpinnings

The father of modern educational theory, John Dewey (1916), proposed the idea of group inquiry using experienced based learning situations. Over the years, these concepts have been studied by a number of educational theorists, including Herbert Thelen (1960). The theoretical basis for this study is the work of Thelen.

Knowledge (asserts Thelen) is stimulated by ideas, is discovered by asking questions based on information and is secured by internalization within the individual so it is available for use. Thelen (1960) identifies four different domains of knowledge: (1) physical, (2) biological, (3) subjective, and (4) social. The social domain holds the bulk of accumulated knowledge and is the interactive environment for individuals. The development of this domain is the development of interdependence among people. Within the social domain, the social group establishes
norms and culture while subgroups further delineate behavior and parameters so persons can feel a sense of belonging.

Knowledge, Thelen (1960) believes, is an unborn experience. It is internalized, part of our meaningful past experiences living within us, a predisposition to inquiry and a potential, yet undeveloped. The collected knowledge of a group is far more than any one individual and needs only focus, inquiry, and reflection to bring knowledge to a form where it can be used. When this process is performed by a group, rather than by an individual, the usable knowledge becomes more than any single individual could hope to achieve.

Thelen (1960) also identifies four models of education: (1) personal inquiry, (2) group investigation, (3) reflective action, and (4) skill development. Inquiry is a process guided by method, connecting cause to effect and making subject matter meaningful. Personal inquiry will encourage one to mull over thoughts, feelings, and performance, to set personal goals and plan strategies for dealing with the subject matter. Personal inquiry must take place before group investigation takes place. Each individual is accountable for this personal inquiry.

Interdependence is the foundation of a group (Thelen, 1960). Groups are individuals who together seek to meet needs (goals), establish order (norms) and determine what elements are of importance (culture). Through this process, people change their own behaviors and in turn influence the behaviors of others. Using a group as an education tool taps the combined knowledge of all members of the group through inquiry and allows for growth of the group and individuals within the group as they take over more of the responsibilities for learning and directing the nature of the inquiry (Thelen, 1960). Motivation becomes that of social (peer) expectations.
Reflection does not happen during the active group work, but instead occurs after the group has finished its inquiry. It helps keep anxiety regarding group work within bounds. It gives individuals within the group time to ponder new insights, to review the process of the group, to set new goals, and to reflect on their own behavior and the behavior of the others in the group. These reflective moments often define new paths of inquiry for future group interactions (Thelen, 1960).

Skill building, the fourth of Thelen’s models of education, requires information and role-modeling. Identification of important information ensures that energy will go into relevant learning. When role-modeling of those desired behaviors is coupled with peer motivation, learners will strive for “likeness” as they take on new behaviors in their group to facilitate the inquiry process.

While Thelen never used the term *cooperative learning*, his belief in the power of the group for learning, for influencing social behavior and as a basis for the process of inquiry, lends itself well to be the underpinnings of this study.

Background of Cooperative Learning—Primary and Secondary Educational Setting

Cooperative learning has an ancient pedigree. Since time immemorial, teachers have allowed or encouraged their students to work together on occasional group projects, in group discussions or debates, or in other kinds of work groups or peer tutoring dyads. These methods were typically informal, unstructured, and only used on rare occasions. However, about twenty years ago, some significant developments began to take place in this age-old technique. For the first time, specific cooperative learning strategies began to be developed and, even more importantly, to be evaluated, in a wide variety of teaching contexts. As a result of many years of research and practical applications by hundreds of thousands of teachers, effective cooperative learning methods now exist for virtually every imaginable instructional purpose. (Slavin, 1995, p. ix)

Research, such as Slavin described, has been considerable, particularly on the kindergarten through 12th grade (K–12) population. This research base may be one
of the reasons that cooperative learning has entered the mainstream in educational practice. The research is abundant, especially in the area of student achievement (content mastery).

Achievement

Slavin (1995) identifies the most important goal of cooperative learning as providing the students with the knowledge, concepts, skills, and understanding to become contributing members of society. Measurement of this goal, considering the relative ease of measuring achievement, has yielded a significant number of studies. In a meta-analysis by Slavin (1995), the selected research studies (99 in total) taken as a whole, overwhelmingly support the positive effect of cooperative learning on student achievement. Within the set of studies, some (31) showed no difference in achievement and 5 were significantly negative. Based on this analysis, it can be said that cooperative learning has a positive effect on student achievement. Group goals and individual accountability are the two elements most frequently cited that impact on this achievement.

Johnson and Johnson (1989) also conducted a meta-analysis based on 185 studies. They compared the impact of cooperation and competition on achievement. Cooperation’s relation to achievement was significantly greater than competition’s. The research also indicated that cooperation (a) promoted greater productivity than did interpersonal competition or individualistic efforts, (b) promoted more frequent gains in the ability to process than did competitive and individualistic efforts, (c) promoted greater transfer of learning than did competitive or individualistic efforts, and (d) supported the concept that joint rewards are perceived as more fair than differential rewards. It also resulted in more frequent use of high quality reasoning.
strategies and promoted more frequent transition to higher level reasoning strategies.

A source of disagreement in the literature on student achievement in primary and secondary schools is the issue of whether cooperative learning is effective in all grade levels. Newmann and Thompson (1987) question whether cooperative learning is effective in the senior high school (grades 10–12). There is ample evidence that this method is academically effective in grades 2 through 9, but relatively few studies address the higher grades and the results are not as consistent as those from elementary and junior high/middle schools (Sharan, 1990).

Outcomes Other Than Achievement

Cooperative learning is not only an instructional technique for increasing student achievement, it is also a way of creating a prosocial environment in the classroom, one that has important benefits for a wide array of affective and interpersonal outcomes. (Slavin, 1995)

The breadth of the research investigating noncognitive outcomes of cooperative learning is more extensive than achievement based research with cooperative learning; however, the depth of the research for each noncognitive outcome is sparse compared to the research linking cooperative learning with achievement. Elements that effect outcomes such as intergroup relations, race relations, mainstreaming, self-esteem, peer norms, locus of control, attitudes, engaged time, liking school, liking classmates, cooperation, altruism, and ability to take another perspective were all explored. Although not every study found positive effects on every noncognitive outcome, the overall effects of cooperative learning on self-esteem, peer support for achievement, internal locus of control, time on task, liking of class and classmates, and cooperativeness were positive (Slavin, 1995).
Many of the studies reviewed by Slavin (1995) pitted a competitive climate against a cooperative climate; in virtually all of these studies cooperative learning was shown to be a significantly better influence on affective skills. The studies by Huber and Eppler (1990) and Lazarowitz and Karsenty (1990) show that junior and senior high school students can acquire the necessary management and interaction skills relatively easily, and with appropriate guidance from the teacher they can achieve important academic and social goals at the secondary level. This counters the belief of teachers that interactive skills must be taught at a young age (Sharan, 1990), an excuse that is given for not using cooperative learning.

Most of the research on cooperative learning in primary and secondary education looks at a small set of subjects over a short point in time. In one school system, San Ramon, California, cooperative learning methods encompass the entire school experience of students. One study (Solomon, Watson, Schaps, Battistich, & Solomon, 1990) looked at the San Ramon program, which was designed for prosocial development. The findings indicate strong and consistent program effects in attitude, prosocial motives, skills, inclinations, perceptions, and behaviors. Periodic and longitudinal studies continue.

Research in the K–12 arena continues to be conducted, especially for impact on achievement; however, there seems to be an increase in the "outcomes other than achievement" research by several investigators. The real need for further research is in higher education where cooperative learning is just gaining momentum (Cooper, 1996).
Background of Cooperative Learning Research—
Higher Education

In 1985, there were fewer than 20 citations in the ERIC data base under the descriptor “cooperative learning/higher education.” By the fall of 1990 . . . that number had grown to around 80. In February of 1996 the number of citations listed under this descriptor was 813. Although cooperative learning at the K-12 level has over a 25-year history, it is only in the last seven or eight years that serious attention has been paid to cooperative learning in higher education by significant numbers of people. (Cooper, 1996, p. 1)

Achievement

The study that seems to give the most potential value to cooperative learning in the college classroom is that of Wulf, Nyquist, and Abbott (1987). They surveyed 800 college students and found that the second most frequently cited factor contributing to learning in large classes was “other students.” Levin, Glass, and Meister (1984) concluded from a cost effectiveness study of four academic strategies that working with fellow students is the most cost-effective support system for increasing student achievement at the college level.

From these initial research projects, more than a decade ago, two prominent researchers in cooperative learning have started concentrating more energy on the college population. Dansereau and Johnson (1994) looked at the research studies dealing with classroom based research using achievement as the outcome measure. They reported that cooperative learning has positive effects on achievement for a wide range of college and adult courses including psychology, engineering, chemistry, statistics, physics, and in military training and education courses. They also report that several studies have failed to find achievement differences between courses taught using cooperative learning and those taught using the more traditional approach. They suggest “that positive conclusions be drawn cautiously” (p. 2)
regarding the impact of cooperative learning with college and adult populations (Cooper, 1996). Dansereau and Johnson (1994) looked at a small number of students studying in pairs in a controlled laboratory setting. Their findings indicated a higher level of achievement was produced than by studying individually.

Higher achievement has also been linked to the concept of interdependence (Ortiz, 1992; Slavin, 1991). Hughes and Townley, in their 1994 study, supported the premise that positive interdependence results in students' promoting each other's learning and achievement. They also found that with most tasks, productivity is enhanced when individuals give each other relevant task-related help and assistance. In a meta-analysis of 45 studies by Stanne (1996), cooperation (social interdependence) was shown to positively impact on achievement, as well as social and self-acceptance. When engaged in cooperative activities, individuals seek outcomes that are beneficial to themselves and all members of the group. Jackson (1986) found that by using cooperative goal structure, interdependence was created for each student. However, achievement or increased learning with the use of cooperative learning is not always supported. At best it can be said that research in higher education demonstrates that cooperative learning does no harm to learning. Some studies (Chang, 1993; Hall, 1993; Kaminski, 1991; Mihelcic, 1993; Milson & Laatsch, 1996; O'Brien, 1993) show achievement to be no different than traditional learning methods. This was also true in several nursing studies (Cobb, 1995; Diflorio, 1995; Garcia, 1993; Horwitz, 1993; Smith, 1984). Other studies show improved performance (Austin, 1996; Cook; 1989; Habanek, 1993; Huber, 1991; Lynch, 1996; Orlando, 1991; Venema, 1988; Wedman, Hughes, & Robinson, 1993). These same results (improved performance) were also evident in the nursing studies completed by Higgins (1991) and Houston (1990). When group goals and individual accountability
are used together in the classroom, the achievement effects of cooperative learning are consistently positive (Slavin, 1991).

Individual accountability within cooperative learning is the responsibility each group member has for individual behavior (learning, interacting) to help the group be successful (Slavin, 1990). The literature links individual accountability with achievement and with the determination of how testing should be handled, i.e., group testing versus individual testing versus a combination of both. Slavin (1983) found that using group rewards based on the sum of individual learning performances resulted in greater achievement. Likewise, Huber, Bogatzke, and Winter (as cited in Slavin, 1987) found that providing recognition to student groups based on the sum of their individual learning was a stimulus for greater achievement and that simple peer interaction was not enough. Also at the college level, Dansereau (1988) and Davidson (1985) provide examples of successful use of cooperative learning for achievement without individual accountability as a determining factor.

Outcomes Other Than Achievement

A meta-analysis of 122 studies at the college level by Johnson, Maruyama, & Johnson (1981) concluded that research strongly supports affective changes in students from a cooperative learning environment including increased social support, higher self esteem, greater interpersonal attraction, increased cohesiveness, positive attitudes toward school, increased trust in peers, and greater confidence in own ability. Three specific affective outcomes of cooperative learning examined in this study are reviewed: attitudes, social skills, and processing.
Attitudes

Because of the social context in which groups function, the presence of group goals and the interdependence within each group, affective growth in cooperative learning environments differs from that in a traditional classroom (Sandberg, 1992). The structure changes from rows with all students facing forward to a face-to-face physical arrangement.

Face-to-face interaction describes the group’s physical arrangement. The group is small enough so that eye contact can be maximized, allowing closer ties to be fostered (Sharan & Sharan, 1976). Eye-to-eye contact also influences the flow and quality of verbal discussion (Argyle, 1967; Argyle & Dean, 1965). Communication in the group is influenced by both quality and size of the group (Garcia, 1993). Group size also influences the extent of member involvement in the group’s progress. As the size of a group increases, the frequency of time each person speaks declines (Garcia, 1993) and so does the total amount of conversation in the group (Dawe, 1934).

Through the change in structure, empirical data suggest that a change in process also occurs (Watson, 1966, pp. 189–213). Watson theorizes that with change in process, there is a shift in attitudes; the attitudes develop from the changes in behavior, which in turn are a result of different expectations. Cooperative learning demands more thought, responsibility, and self-direction from the participants; thus the attitude outcomes are different (Gorman, 1969, p. 34).

Several cooperative learning higher education studies support the premises put forth by Watson (1966) that attitudes will change when both structure and process have altered (Cook, 1989; Hewlett, 1990; Kassem, 1990; Orlando, 1991; Scanlan, 1988; Slavin, 1993; Starr, 1991; Tsay, 1993; Venema, 1988). Only two
studies in higher education found no difference in attitudes with changes in structure and process within the classroom (Hall, 1993; O'Brien, 1993). One attitude that has frequently been cited as a positive outcome of cooperative learning is the attitude, group involvement. This entails the student's view regarding the degree of motivation, enjoyment, support, and success present in group work (Swartz, 1989). Six authors have documented group involvement through empirical studies (Austin, 1996; Lynch, 1984a; Warner, Ford-Gilboe, Laforet-Fliesser, Olson, & Ward-Griffin, 1994), three of them in nursing (Beck, 1992; Hiebert, 1996; Horwitz, 1993). Others (Beeken, 1991; Glendon & Ulrich, 1992; Goodfellow, 1995; Manera & Glockhamer, 1988/1989; Ventimiglia, 1994) have presented the same conclusion in descriptive writings of their classes.

One nursing study (Higgins, 1991) found no difference in motivation between those in a cooperative learning group and those not in a cooperative learning group. This study used computers to mediate the cooperative learning experience. Another study (Garcia, 1993) found those who used an interactive video with a cooperative learning group demonstrated increased satisfaction.

Anxiety toward group work or the uneasiness a student feels in group situations has been shown to decrease in a cooperative learning environment (Lynch, 1984a). Manera and Glockhamer (1988/1989) presented a descriptive example of introducing a cooperative learning model. Another attitude, value of the group or the student's view regarding the usefulness of group work activity, has been addressed by a small number of authors within higher education, including two in nursing. Their findings support the research done at the K-12 level, that students experiencing a cooperative learning environment value the group experience more (Ashton &
These attitude shifts as a result of the cooperative environment are a positive direction for students, especially with decreased anxiety in working with others and the value of interacting with peers. These are desired outcomes for professionals who work in health care environments that depend upon cooperation to meet client needs (Beeken, 1991).

Social Skills

In cooperative learning, the development of interpersonal skills is as important as the learning itself. The development of social skills in group work—learning to cooperate—is key to high quality group work (Smith & MacGregor, 1993). The development of social skills as both an element and outcome of cooperative learning is attended to through the interaction with others. These skills include good listening, cooperating in common tasks, giving and receiving constructive feedback, respecting differences in opinion, supporting own judgments with evidence, and appreciating diverse points of view (Meyers & Jones, 1993).

These social skills of cooperative learning can be identified through behaviors exhibited during group interaction. (These are discussed further in the Design section.) They are also evident in the roles that individual members take on. These, too, can be identified by exhibited behaviors. A study by Hughes and Townley (1994) explored the improvement of several social skills in graduate students through a cooperative learning format. They found that the social skills of decision-making, human relations, speaking, networking, and teamwork were all positively rated by students. Student comments further supported their hypotheses. Teamwork and
networking were the highest ranked. Likewise, in a large study of 25,000 college students, examining 82 outcome measures and 150 student variables, Astin (1992) found that student-student and student-teacher interactions are the best predictors of cognitive, affective, and other measures. Jackson (1986) compared the experience between graduate and undergraduate students during a cooperative learning experience. Both groups reported gains in problem solving, effective communication, constructive conflict resolution, and positive interactions. The graduate students, in addition, thought that their networking ability improved as well. The nursing study by Garcia (1993) also found increases in positive interactions with the use of cooperative learning. However, the studies by Cobb (1995) and Smith (1984) failed to demonstrate a significant increase in the amount or type of interactions while in cooperative learning groups in a nursing program.

Both Slavin (1985) and Johnson, Johnson, and Maruyama (1983) have found consistent positive growth in intergroup relations as well as increases in self-esteem and attitudes toward the group and its work. Two other studies (Slavin, 1979; Ziegler, 1981) found that students who participated in cooperative learning experiences had on the average more friends, both in and outside their ethnic group, than those students who did not participate in a cooperative learning experience. A 4-year longitudinal study by Solomon et al. (1990) found that students who had been taught cooperatively were significantly higher on measures of supportive, friendly, and prosocial behavior; they were also better at resolving conflicts and expressed more support for democratic values. These social skills acquired during cooperative learning have also been shown to transfer to individual efforts (McDonald, Larson, Dansereau, & Spurlin, 1985).
Ortiz (1992) found that those students who experienced cooperative learning had a greater degree of qualitative and quantitative verbal interactions as well as positive attitudes about the experience (Orlando, 1991). Affective (self-esteem) gains were also found in studies by Venema (1988) and Scanlan (1988).

Two nursing studies were of particular interest to this research as they addressed several affective variables. Diflorio's research (1995) found that students reported (through interviews and journals) a feeling of increased responsibility to help others, better individual class preparation, a positive impact on learning, increased social support, and increased class preparation after participating in a cooperative experience over 4 weeks. Keenan's research (1980) showed no significant difference between levels of students (sophomore, junior, or senior) and their personal orientation to cooperative and competitive behaviors, nor in their perceptions of these behaviors in their peers. These students also perceived the learning environment to be more competitive as they progressed through the program.

Compared to the amount of research that has been done relative to the cognitive outcomes of cooperative learning, relatively little research has targeted the other outcomes that may result from cooperative learning, affective, and social outcomes. As seen from the studies cited, there is evidence that cooperative learning does promote positive outcomes in other than the cognitive domain.

**Processing**

Developing appropriate social skills continues even after the group work is finished through the processing of group work for evaluation purposes (Ventimiglia, 1994). Processing is a technique that involves asking group members to reflect on their behavior during group work and evaluate the group's performance. It allows
them a chance to assess their successes and failures, discuss solutions to content or process problems and plan for changes in behavior to achieve their goals (Gorman, 1969; Meyers & Jones, 1993) This is the opportunity for feedback and evaluation of the group by the group.

One of the most necessary activities of a group is for the members to give and receive feedback about their behavior. Unless members get feedback from other members, the chief resource for improving their functioning is lost; unless members give feedback to other members, the chance for them to improve their effectiveness is denied. (Johnson & Johnson, 1975, p. 302)

No studies were identified that looked at processing as a dependent variable. Only one study was identified (Fertig, 1994) that looked at processing as an independent variable. It examined the effects of small group processing on the acquisition of interpersonal skills during cooperative learning. The skills that were examined were: effective listening, expressing support, and encouraging participation. Results showed that small group processing did not increase the frequency of these skills. In higher education, this particular element of cooperative learning could be of great significance in changing behaviors (thus, a change in attitudes); however, empirical data are needed.

While the literature is abundant with cooperative learning studies, the concentration of the research is at the K–12 level. Higher education, nursing included, has only recently started using cooperative learning as a teaching strategy and only very recently utilizing it as a research focus. Achievement has been the variable most often studied in conjunction with cooperative learning, primarily due to the ease of data collection (test scores and/or grades). The findings with respect to achievement in higher education are mixed. Cooperative learning does not seem to decrease test scores or grades, but the use of cooperative learning groups does not always ensure a rise in either the test scores or grades.
The research in cooperative learning for outcomes other than achievement is less prevalent in the higher education arena. Attitudes are the most commonly studied outcome. Attitudes comprises a realm of topics including motivation, group satisfaction, self-esteem, group cohesiveness, positive attitudes toward school, trust in peers, greater confidence in self, and many others. As a result, the whole of the research in "outcomes other than achievement" may seem large, but because of the number of outcomes that have been studied, the depth in any one area is quite sparse. Generally, the research in higher education indicates positive changes in attitudes with students who have experienced a cooperative learning environment. This research will explore the attitudes of motivation, enjoyment, support, success present in group work, as well as perceived value of the group and anxiety toward group situations. These data will add to the current body of knowledge in higher education, where some attention has been given to these topics and also in nursing, where less research has been done on these outcomes.

Several comprehensive studies in higher education have been completed using the outcome of social skill development as a result of a cooperative learning environment. These studies indicate that a cooperative learning approach to learning increases the social skills of the students. These students seem to exhibit increased prosocial behavior with their peers and demonstrate increased ability to work in teams. The majority of these studies, however, are based on self-reports of the subjects; only a few used observation as a method of data collection. This study used observation as a mechanism for collecting data as well as self-report of the students to indicate the frequency at which they exhibited these skills and the comfort with which they performed them.
Conceptual Hypotheses of the Study

This study attempted to describe the impact of cooperative learning as a teaching strategy on BSN students. This study was addressed through the following conceptual hypotheses:

1. There is a difference in attitude toward group work by BSN students after experiencing a deliberate, planned, cooperative learning environment.

2. There is a difference in the frequency of social skills demonstrated by BSN students after experiencing a deliberate, planned, cooperative learning environment.

3. There is a qualitative difference in the BSN students' ability to process group behavior after experiencing a deliberate, planned, cooperative learning environment.

Summary

This chapter provides the theoretical and empirical basis for this study. Higher education literature, including nursing, demonstrates the need for more empirical research in the affective consequences of cooperative learning to augment the more abundant data available for the cognitive component. This study supplements existing research on the affective components of cooperative learning in the higher education literature. In addition, this study is important to the existing literature base because of its uniqueness in the breadth and depth of the intervention.
CHAPTER III

DESIGN OF THE STUDY

The purpose of this study was to examine the effects of a deliberate, planned cooperative learning environment on the attitudes, social skills, and processing of baccalaureate nursing students. A review of literature revealed that research has been limited in documenting the effects of cooperative learning on social skills and processing. In the nursing literature, the research on cooperative learning is sparse and fewer than five studies even address the social skills as an outcome of the learning experience. Attitudes toward cooperative learning and other affective outcomes have been studied, but to a lesser extent than cognitive outcomes. This is also true in the nursing literature with only four studies investigating these variables.

Population

The subjects for this study were nursing students enrolled in NURS 476, Leadership and Management, at an off-campus site of a Midwestern university during the fall semester, 1996. The entire class, 43 students, was involved. This course was the last clinical nursing course for these students who were within one semester of graduating. The students were all registered nurses with either an Associate Degree in Nursing from a community college or a Diploma in Nursing from a hospital program. The range in age was from about 22 to 55. The length of time they had been practicing nursing varied from 2 years to 3 decades.
This population was employed full-time within the profession in a variety of clinical areas both inside and outside the acute care setting. There was a significant number, more than 20%, who were employed at some level of management within the organization in which they worked.

Treatment

The independent variable, the cooperative learning environment, is described for the reader to understand how cooperative learning was operationalized in the classes. The explanation follows the five elements of the cooperative learning model outlined previously. An outline of the course itself and the role of the faculty are included.

The Setting

The course involved in this study, NURS 476, Leadership and Management, was a 6-credit class which met 5 hours, one evening a week for 15 weeks. All 5 of these hours included cooperative learning group work. Three of the 5 hours were allotted to covering didactic content using critical thinking questions that the group discussed and answered. The remaining 2 hours were in the form of clinical conferences where content was applied through the use of role play, group projects, and simulations. The students were familiar with this concentrated format from previous courses. Because one of the cornerstones for both leadership and management is the ability to work with groups of people, the cooperative learning approach was desirable for both learning process and content.
The Faculty Role

The role of the faculty in this cooperative learning situation was one of facilitator. This facilitation started with providing an environment in which cooperative learning could be successful and continued through the entire semester aiding the student in the learning, performance, and evaluation of those behaviors that allowed the group to function as a unique learning atmosphere. The modeling of behaviors was the most crucial role in which the faculty engaged every evening the class met. The instructors sat in with each group for 15 to 30 minutes; it was during this time and through the tactic of modeling that students identified those attributes that the faculty deemed important. This intervention of modeling was used to demonstrate successful conflict resolution, decision making, collaboration, reflection, question asking, and those social skills that they needed for good group interaction. The faculty also were available to spontaneously critique group function and interaction, allowing students to amend behavior immediately. Faculty also responded to student journals, giving feedback in addition to what came from the group directly.

Positive Interdependence

Positive interdependence, an element of cooperative learning, creates the realization that members have two responsibilities: to learn the assigned material and to ensure that all members of their group learned the assigned material. Group members had to know that they “sank or swam” together and that cooperative learning required them to roll up their sleeves and work together to accomplish something beyond individual success (Johnson, Johnson, & Holubec, 1993). There are four types of positive interdependence: goal interdependence, role
interdependence, resource interdependence, and identity interdependence (Johnson et al., 1993).

Each group reached goal interdependence by mutually agreeing on a goal for the evening's work. This goal addressed growth issues that the group deemed important. Goal setting assured that the members were united around a common cause and that they were all headed in the same direction. The group's discussion questions were clear and concise and well defined. Each student's score for the content posttest (given at the close of each session to ascertain content mastery) was determined by obtaining a mean for each group based on individual scores. This reinforced the idea that they all had a stake in making sure the content was known by all.

The class achieved role interdependence by being assigned complementary and interconnected roles within the group that specified responsibilities that the group needed in order to complete the joint task. Roles prescribed what other group members expected from a person and what that person had a right to expect from other group members who had complementary roles. These included the roles of recorder, evaluator, observer, and leader. The roles were rotated each week so each person was involved with each role three to four times over the course of the semester.

The class reached resource interdependence as each member had only a portion of the information. The members shared resources in order for the group to achieve its goal. This was accomplished by the group dividing up the homework discussion questions so that each became an expert in one or two areas for the following week's class meeting.
Identity interdependence was reached as the group established a mutual identity through a name, colors, and symbol to represent their group. They identified group norms (rules for behavior within the group) and revisited them each week. This helped them become a group right from the beginning.

Individual Accountability

This element of cooperative learning, individual accountability, existed when the performance of each individual member was assessed, the results given back to the individual and the group to compare against a standard of performance. The member was held responsible by group-mates for contributing her/his fair share to the group’s success. (Johnson et al., 1993) Individual accountability was the way to ensure that all of the members were strengthened by the cooperative learning experience. First, the students learned the knowledge, strategies, and skills in the cooperative group and then they applied the knowledge, practiced the skill, and performed the strategy within their own group and later, in an out-of-class group that they led. This group leader experience for the student occurred within their clinical agency; this task or educational group met for a total of 3 contact hours and was composed of 5 to 10 organizational members.

The element of individual accountability was also enhanced by keeping the group small, giving individual posttests, and most of all, having students teach what they learned to someone else.

Face-to-Face Interaction

This element of cooperative learning, face-to-face interaction, was achieved by ensuring that all group members met face-to-face to work together in completing...
assignments and promoting each other's success. (Johnson et al., 1993). This promotive interaction helped the group to achieve more than they could each hope to achieve alone and raised the learning to a higher level through questioning, challenging, reasoning, and insight.

This was achieved through keeping the groups small with 4 to 6 members, having tables and chairs available for the groups to work at instead of desks, and providing enough time to achieve their goals.

Social Skills

Social skills are those behaviors (functions) that the group members need to work effectively with each other. In the cooperative learning groups, each member was required to learn behaviors that helped get the job done, met the goal, or achieved the end. These are called task functions (Gorman, 1969; Johnson & Johnson, 1975; Schmuck & Schmuck, 1971). These task functions include the following:

1. Initiating: Proposing goals and tasks to initiate action within the group; developing plans on how to proceed and focusing attention on task to be done.

2. Seeking information: Asking for facts, information, opinions, ideas, and feelings from other members to help group discussion.

3. Giving information: Offering facts, opinions, ideas, suggestions, and relevant information to help group discussion.

4. Clarifying/elaborating: Interpreting ideas or suggestions; clearing up confusion; defining needed terms; indicating alternatives and issues that are before the group; giving examples and developing meaning; making generalizations; indicating how a proposal might work out if adopted.
5. Summarizing: Pulling together related ideas; restating suggestions after the group has discussed them; offering decision or conclusion for the group to accept or reject.

6. Evaluating: Examining the practicality and workability of ideas; evaluating alternative solutions and applying them to real situations to see how they will work; comparing group decisions and accomplishments with group standards and goals.

In addition to the task functions, there are another set of social skills that the group members must learn to perform: maintenance functions (Gorman, 1969; Johnson & Johnson, 1975; Schmuck & Schmuck, 1971). These behaviors, a focus of this study, act to build more of a group feeling—an intragroup respect and rapport. These maintenance functions are:

1. Harmonizing: Persuading members to analyze their differences in opinions constructively; searching for common elements in conflicts; trying to reconcile disagreements; easing tensions and increasing enjoyment of group members.

2. Gate-Keeping: Showing good communication skills and making sure that each group member understands what other members are saying; attempting to keep communication channels open; facilitating participation of others; suggesting procedures for discussing group problems.

3. Encouraging: Urging everyone to participate; giving recognition for contributions; demonstrating acceptance of ideas of others; being friendly and responsive to group members.

4. Compromising: Offering compromise when one's own status or idea is involved in a conflict; yielding status, admitting error; disciplining oneself to maintain group cohesion.
5. Standard-Setting/Testing: Expressing group standards and goals to make members aware of direction of work and of progress being made.

6. Sensing/Expressing Feelings: Asking members how they feel about the way in which the group is working and about each other and sharing their own feelings about both.

These social skills were taught and discussed at the first class meeting of the semester. For the remainder of the semester, these social skills were practiced for 5 hours each class meeting as the group discussed the questions they had answered as a homework assignment and practiced these skills through role play and simulations. The students also practiced observing using specific outlined criteria. These skills were, on an ongoing basis, modeled by the instructors facilitating this course.

The antithesis of social skills are nonfunctional group behaviors. These behaviors are self-serving in nature and do not assist the group in reaching their goals. They include: aggression, blocking, self-confessing, horsing around, dominating, withdrawing, and special interest pleading (Abercrombie, 1979). These behaviors were discussed with the group to clarify behaviors that may impede group progress, effectiveness, and success.

**Group Processing/Processing**

The purpose of processing was to clarify and improve the effectiveness of the members in contributing to the cooperative efforts in achieving the group's goals. This element of cooperative learning was achieved through a group processing session after the meeting of the group each week. The group reflected on its time together and reflected on which member's actions were helpful and unhelpful and then made decisions about what actions to continue or change. These sessions
provided for the group and the individual student: an avenue for maintaining good working relationships among members, feedback on participation, facilitation of learning social skills, reflective time on one's own behavior, and a time to celebrate the success of the group and reinforce the positive behaviors of group members.

Instrumentation

Three instruments were used in this study: the Group Work Attitude Inventory, a Maintenance Function Observation Sheet, and a four-section Student Survey.

Group Work Attitude Inventory

The Group Work Attitude Inventory (Appendix A) is an instrument designed to assess cooperative group work’s attitudinal dimension. It was originally developed by Sandman (1973), tested for construct validity and reliability with college students (Swartz, 1985), and utilized with cooperative learning groups (Swartz, 1989). The 12 items contained in the test examine motivation, enjoyment, support, success present in group work, as well as perceived value of the group and anxiety toward group situations. The responses require a Likert-type, forced-choice response system (strongly agree, agree, disagree, strongly disagree). The items are scored 1, 2, 3, 4, respectively, while negatively worded items (4, 9, and 11) are reversed scored. The scores are then summed across the items with a low score indicating higher agreement. This yields a composite score.
Validity

All construct validity coefficients available for the Group Work Attitude Inventory are in the form of item-to-scale correlations (Sandman, 1973; Swartz, 1985; Swartz, 1989). Coefficients of validity for the test as a whole are not available. Sandman (1973) asserts that "strong evidence of internal validity of the instrument is present" (p. 64) and while "external validity was not statistically established" (p. 74), "the accumulation of supporting evidence increases the confidence with which the claim of external validity can be made" (p. 100).

Reliability

Reliability coefficients were not available for the Group Work Attitude Inventory as a whole. Cronbach's alpha reliability coefficients for the subscales were derived in a separate study (Swartz, 1989) and were all found to be above .72 (p. 76). Gable (1993) has indicated that in general, affective measures tend to have lower reliability levels than cognitive measures, with good affective instruments frequently having reliabilities as low as .70 (p. 217).

Maintenance Function Observation Sheet

The Maintenance Function Observation Sheet (Appendix B) is a closed-ended tool, a checklist of the six social skills. These social skills (maintenance functions) included harmonizing, gate-keeping, encouraging, compromising, standard-setting/testing, and sensing/expressing feelings. This researcher-developed tool was used by the faculty to document the frequency of those social skills when exhibited by each group member during cooperative learning group work.
The two faculty involved in this collection of data established interobserver reliability with a half-hour session observing the same group. A frequency count recording (Borg, 1989) documented each time one of the targeted social skills occurred. There was 100% agreement in observations made by the two faculty in the half-hour session (correlation of 1). An acceptable correlation should exceed .70 (Borg & Gall, 1989, p. 490).

**Student Survey**

The Student Survey (Appendix C) is a self-reported reflection of the student’s attitude toward group work, comfort and frequency of using maintenance functions, and ability to promote successful group functioning. The survey contains four sections. The first is the Group Experience Rating Survey, which measures attitudes toward group work with a 7-point semantic differential scale using a series of eight bipolar adjectives. Scoring ranges from 1 to 7 for each item with the lower number being the most positive. Items 2 and 5 are reversed scored. The second is the Comfort Survey and the third is the Maintenance Function Usage Survey, which measures the comfort and frequency of using the six maintenance functions. These tools utilize rating questions with “always” and “never” as end points between the seven graduations for each behavior. The scoring ranges from 1 to 7 for each item with the lower number being “always.” The fourth section is the Processing Survey, which measures the promotion of successful group functioning by using a series of two open-ended questions.

This researcher-developed tool for data collection allowed the student to reflect on growth over the semester using subjective data. The affective nature of the
variables collected with this tool permitted expansion of the data with respect to feelings, values, and reactions.

Data Collection

After obtaining approval from the Human Subjects Institutional Review Board at both Western Michigan University and Ferris State University (Appendix D), letters were given to the students providing them with a written explanation of the study and the opportunity to choose to participate (Appendices C and E). Each participating student self-selected an identification number and used that number for the Group Work Attitude Survey and Student Survey. The investigator was unaware of which subject (student) had what number. The data collection proceeded in the following manner.

Group Work Attitude Inventory

The Group Work Attitude Inventory was administered at the beginning and end of fall semester and once in the winter semester. The first time it was administered was in the first class meeting, before any class content has been presented or group work initiated. It took approximately 5 minutes to complete on a machine-scanned answer sheet. The students identified their test with the self-selected identification number. The second time the Group Work Attitude Inventory was administered was during the last class meeting after all group work had been completed. The third time the Group Work Attitude Inventory was administered was at midterm in the winter semester. This third administration of the inventory was completed by a nursing faculty member not involved in the teaching of cooperative learning. At all times the tool was used, a faculty member (not the investigator)
collected and turned the response sheets in to the testing center at Ferris State University for analysis.

**Maintenance Function Observation Sheet**

The Maintenance Function Observation Sheet (Appendix B) was used by the faculty every time that a group was observed over the semester. Each of the two observations for each of the eight groups was of 20 minutes in length. One observation occurred at either week 4 or 5 and the second observation occurred at either week 10 or 11. The faculty observations focused on identifying the frequency and type of group maintenance functions that occurred by marking in the appropriate box when maintenance function was exhibited.

**Student Survey**

The four-part Student Survey (Appendix C) was administered and completed by the students at two different times during the semester. This occurred on the first night of class before any class content was addressed and on the last night of class after all course work had been completed. The students were given a half-hour to reflect on attitudes toward and behaviors during group work. The students identified their survey with their individually chosen identification number. The surveys, written the first night of class, were collected by a student, sealed in an envelope, and kept by the site student representative until the completion of the semester, when it was given to the instructor. The second survey, administered the last night of class, was collected by a student, sealed in an envelope, and given to the instructor.
Hypotheses

A cooperative learning environment was conceptualized as an environment that contains the elements of cooperative learning: interdependence, individual accountability, face-to-face interactions, social skills, and processing. (Johnson et al., 1993; Sharan & Hertz-Lazarowitz, 1980; Slavin, 1983) The three conceptual hypotheses identified in Chapter II were developed from the research questions in Chapter I. Below are listed the three research questions and the corresponding conceptual hypotheses of the study with operational hypotheses proposed to answer each of the questions.

Question 1 asked: What effect does a deliberate, planned cooperative learning environment have on the attitudes of BSN students toward group work? Attitudes, a determinant of established behavior, toward group work (Gorman, 1969), were operationalized through (a) the Group Work Attitude Inventory (Appendix A), which includes a composite score of the areas of involvement, value, and anxiety (Swartz, 1989); and (b) the Group Experience Rating Survey (Appendix C, Question 1). The conceptual hypothesis of a difference in attitude toward group work by BSN students after experiencing a deliberate, planned cooperative learning environment was operationalized as follows:

IA: BSN students experiencing a deliberate, planned cooperative learning environment over a semester will have a different mean Group Work Attitude Inventory score measured at the end of the semester and again at 2 months after the completion of the semester than the mean Group Work Attitude Inventory score measured at the beginning of the semester.
IB: BSN students experiencing a deliberate, planned cooperative learning environment over a semester will have a different mean Group Experience Rating Survey score measured at the end of the semester than the mean Group Experience Rating Survey score measured at the beginning of the semester.

Question 2 asked: What effect does a deliberate, planned cooperative learning environment have on the BSN student’s social skills? Interactive skills (social skills) are operationalized as either task or maintenance functions (Gorman, 1969; Schmuck & Schmuck, 1971; Johnson & Johnson, 1975). Maintenance functions are those behaviors that act to build more of a group feeling, an intragroup respect and rapport. These functions include: Harmonizing, gate-keeping, encouraging, compromising, standard-setting, and sensing/expressing feelings. These functions were operationalized in three ways: (1) The Maintenance Function Observation Sheet, a frequency checklist to record the type and amount of these functions that occur; (2) The Comfort Survey, to determine the degree of comfort the student has in using maintenance functions; and (3) The Maintenance Function Usage Survey, to determine the student’s perception of the usage level of maintenance functions. The conceptual hypothesis of a difference in the frequency of social skills demonstrated by BSN students after experiencing a deliberate, planned cooperative learning environment was operationalized as follows:

2A: BSN students experiencing a deliberate, planned cooperative learning environment will demonstrate a different mean frequency of maintenance functions by the end of the semester than demonstrated at the beginning of the semester.

2B: BSN students experiencing a deliberate, planned cooperative learning environment will have a different mean maintenance function Comfort Survey scores
measured at the end of the semester than the mean maintenance function Comfort Survey scores measured at the beginning of the semester.

2C: BSN students experiencing a deliberate, planned cooperative learning environment will have a different mean Maintenance Function Usage Survey scores measured at the end of the semester than the mean Maintenance Function Usage Survey scores measured at the beginning of the semester.

Question 3 asked: What effect does a deliberate, planned cooperative learning environment have on the BSN student’s ability to process (reflect on own and other’s group behaviors)? Reflection on own and other’s group behavior (processing) also includes the ability to identify consequences of that behavior in terms of group functioning. These two elements, the ability to reflect on one’s own behavior and that of others and the ability to identify consequences of that behavior, are demonstrated by utilizing maintenance behaviors (social skills) when processing. The reporting of these behaviors were retrieved from the Processing Survey (Appendix C, Questions 4 and 5). The conceptual hypothesis of a qualitative difference in the BSN student’s ability to process group behavior after experiencing a deliberate, planned cooperative learning environment was operationalized as follows:

3: BSN students experiencing a deliberate, planned cooperative learning environment over a semester will self-report a difference in direction, specificity, and quality of change in the use of social skills during processing from the beginning of the semester to the end of the semester described in two different group situations.
Method of Data Analysis

The researcher used the conventional level of .05 for alpha for all statistical tests. To test the first five null hypotheses, the $t$ test for paired or dependent samples was used as two measures from the same subjects were obtained (Polit & Hungler, 1995). The $t$ tests were two-tailed as there was no prior research supporting a direction. Data analysis was identified separately for each of the following null hypotheses.

$IA$: BSN students experiencing a deliberate, planned cooperative learning environment over a semester will have no change in mean Group Work Attitude Inventory scores measured at the end of the semester and again at 2 months after the completion of the semester compared to mean Group Work Attitude Inventory scores measured at the beginning of the semester. Upon completion of the Group Work Attitude Inventory, means were determined for the composite scores of each group.

$IB$: BSN students experiencing a deliberate, planned cooperative learning environment over a semester will show no change in the mean Group Experience Rating Survey scores measured at the end of the semester than the mean Group Experience Rating Survey scores measured at the beginning of the semester. Upon completion of the Group Experience Rating Survey, mean group scores were determined for the composite scores of each group.

$2A$: There will be no change in mean frequency of maintenance functions from the beginning of the semester to the end of the semester of BSN students experiencing a deliberate, planned cooperative learning environment. Upon
completion of the observations, mean group scores were determined for each group
(beginning of semester and end of semester).

2B: There will be no change in mean maintenance function Comfort Survey
scores from the beginning of the semester to the end of the semester of BSN students
experiencing a deliberate, planned cooperative learning environment over a semester.
Upon completion of the Comfort Surveys, mean maintenance function Comfort
Survey scores were determined for the composite scores of each group.

2C: There will be no change in mean Maintenance Function Usage Survey
scores from the beginning of the semester to the end of the semester of BSN students
experiencing a deliberate, planned cooperative learning environment over a semester.
Upon completion of the Maintenance Function Usage Survey, means were
determined for the composite scores of each group.

3: BSN students experiencing a deliberate, planned cooperative learning
environment over a semester will self-report no change in direction, specificity, and
quality in the use of social skills during processing from the beginning of the semester
to the end of the semester in two different group situations. This null hypothesis was
analyzed using the following steps. Student responses to two open-ended questions
on the pre- and postintervention Processing Surveys (Appendix C, Questions 4 and
5) were reviewed by the investigator. These questions were: (1) What do you
currently do to ensure continued group success? and (2) What do you currently do to
deal with “not-so-successful” group sessions? The investigator was blinded as to
whether the responses were pre- or postintervention. A coding system was designed
from this review to facilitate the analysis of these data. This coding system consisted
of 10 categories, the last 6 of which represent maintenance functions, the social skills
of interest for this hypothesis:
1. “No answer.” This code was used when no response was given by the student.

2. “?.” This code was used when the student’s response was a “?”.

3. Task functions. This code was used when the response of the student indicated use of one or more of the task functions: initiating, seeking information, giving information, clarifying/elaborating, summarizing, or evaluating (see pages 30–31 for full definition of task functions).

4. Nonfunctional behaviors. This code was used when the response of the student indicated use of aggression, blocking, self-confessing, horsing around, dominating, withdrawing, or special interest pleading.

5. Harmonizing. This code was used when the response of the student indicated use of persuading members to analyze their differences in opinions constructively, of searching for common elements in conflicts, of trying to reconcile disagreements, and of easing tensions and increasing enjoyment of group members. The student response of “I use humor to make the situation better and enjoyable” would be coded in this category.

6. Gate-keeping. This code was used when the response of the student indicated use of good communication skills, making sure that each group member understood what other members are saying, attempting to keep communication channels open, facilitating participation of others, and suggesting procedures for discussing group problems. The student behavior reported as “Listening to be sure of what is said” would be coded in this category.

7. Encouraging. This code was used when the response of the student indicated use of urging everyone to participate, of giving recognition for contributions, of demonstrating acceptance to ideas of others, and of being friendly
and responsive to group members. The student response of “Offer positive feedback to group members” would be coded in this category.

8. Compromising. This code was used when the response of the student indicated use of offering compromise when one’s own status or idea was involved in a conflict, of yielding status, of admitting error, and of disciplining oneself to maintain group cohesion. The student behavior reported as “Attempt to see others’ point of view” would be coded in this category.

9. Standard-setting. This code was used when the response of the student indicated use of expressing group standards and goals to make members aware of direction of work and of progress being made. The student response of “Review the reason and goal for the group” would be coded in this category.

10. Sensing or Expressing Feelings. This code was used when the response of the student indicated use of asking members how they felt about the way in which the group was working and about each other and of sharing their own feelings about both. The student behavior reported as “Reflecting on my behavior and sharing it with the group” would be coded in this category.

These categories are mutually exclusive. However, a response from a student could include material that fit in more than one code.

Decision rules for facilitating accurate classification consisted of identifying components of the response that would correspond with accepted educational group constructs used in this study. When the coding was completed, with all responses (or portions of responses) coded, the responses were organized in corresponding pre- and postintervention groups by the investigator to analyze the self-reports of the students. This technique provided a systematic means of evaluating the direction, specificity, and quality characteristics of the content of the student responses.
Considerations

The design itself is a serious limitation of this study. It is a one group pretest-posttest design in which observations and testing were made before and after the treatment variable (cooperative learning) was introduced to the BSN student group. There are several possible threats to internal validity which cannot be controlled by a single group design. (See the Limitations section in Chapter IV for a discussion of threats not directly related to the design.)

These variables include:

1. Testing. The effect of testing was a source of variation that could explain the differences between the pre- and posttest scores. Second administrations of attitude testing are particularly susceptible to this situation (Huck, Cormier, & Bounds, 1974) as are rating scales and inventories. The measurement of attitudes, a focus of this study, tends to be reactive. Reactive measurement has the potential for modifying the variables under study and hence the results.

2. Instrumentation. The effect of instrumentation may have been an extraneous variable; however, interrater reliability was established between the two experienced observers to decrease the probability of this. In addition, the same observers were used for all observations.

3. Maturation. This threat to internal validity refers to biological or psychological processes which occur with the passage of time and are independent of any external events. This study examined attitudes and abilities over a 6-month period. Observed changes could have occurred as a result of maturation or as a result of the cooperative learning environment. A nontreated control group would be necessary to rule out maturation.
4. History. The last uncontrolled variable which might have confounded the effects of the independent variable, cooperative learning, is history. The length of time between the pre- and posttest measurements and observations ranged from 6 to 14 weeks. Some event could have occurred either in or out of the experimental setting which may have impacted on the dependent variable, especially since all of the subjects were working Registered Nurses and had opportunity and encouragement to apply those concepts introduced and used in the classroom setting. No single event is known to have impacted all subjects.

These four uncontrolled variables are all rival hypotheses and pose a threat to the internal validity of this study. Statistical regression and mortality were not identified as extraneous variables in this study, the students were not strongly atypical for the instruments used, and no students left the group during the course of the study.

Summary

This chapter provided an overview of the methodology which was employed to carry out this study in terms of logistics and data analysis. The sample was described as well as the treatment that was carried out. Instrumentation in the form of the Group Work Attitude Inventory, Maintenance Function Observation Sheet, and the four-part Student Survey containing the Group Experience Rating Survey, the Comfort Survey, the Maintenance Function Usage Survey and the Processing Survey were explained. Data collection procedures were reviewed, the conceptual hypotheses from Chapter II were operationalized, data analysis procedures were discussed, and considerations of the design were presented.
CHAPTER IV

RESULTS OF THE STUDY

The purpose of this study was to examine the effects of a deliberate, planned cooperative learning environment on the attitudes, social skills, and processing of baccalaureate nursing students. The results of this study are presented in this chapter.

Intervention

Subjects for this study were the entire class of NURS 476, Leadership and Management, from an off-campus site of a Midwestern university during the fall semester, 1996. The 43 students (Registered Nurses) were randomly assigned to one of eight cooperative learning groups. Each cooperative learning group maintained the same composition throughout the semester. The class met 5 hours, 1 night a week for 15 weeks. It included both a didactic and a clinical conference component. The cooperative learning group was used as a teaching methodology for both of these components.

The role of the faculty was one of facilitator. An environment was provided in which cooperative learning could be successful, where learning could occur, and in which evaluation of group behaviors could be immediate. Modeling by the faculty of those behaviors which are essential for group success was ongoing, allowing the student an opportunity not only to hear about these maintenance functions, but also to see those functions actually used in the context of the group experience. The class was structured so that each of the five elements essential for cooperative learning—
positive interdependence, individual accountability, face-to-face interaction, social skills, and processing—could all occur.

Results

The study was addressed through three conceptual hypotheses from which the operational and null hypotheses were derived. This section will present the results organized around these hypotheses. The first conceptual hypothesis was: There is a difference in attitude toward group work by BSN students after experiencing a deliberate, planned cooperative learning environment. From this hypothesis, two subhypotheses were identified.

Hypothesis 1A proposed: BSN students experiencing a deliberate, planned cooperative learning environment over a semester will have different mean Group Work Attitude Inventory scores measured at the end of the semester and again at 2 months after the completion of the semester than the mean Group Work Attitude Inventory scores measured at the beginning of the semester. The null hypothesis tested was: BSN students experiencing a deliberate, planned cooperative learning environment over a semester will have no change in mean Group Work Attitude Inventory scores measured at the end of the semester and again at 2 months after the completion of the semester compared to mean Group Work Attitude Inventory scores measured at the beginning of the semester. Each student completed both a pretest (before intervention), a posttest (after intervention) and another test 2 months after the completion of the semester using the Group Work Attitude Inventory (Appendix A). This tool was designed to assess cooperative group work’s attitudinal dimension (Swartz, 1989). The 12 items contained in the test examine motivation, enjoyment, support, success present in group work, as well as perceived value of the
group and anxiety toward group situations. The responses required a Likert-type, forced-choice response system (strongly agree, agree, disagree, strongly disagree) with a scoring of 1, 2, 3, and 4 accordingly.

Means were determined for the composite scores of each group (pretest, posttest and 2 months later). The pretest mean was compared to both the posttest mean and the mean of the 2-months-later test. This hypothesis was tested at an alpha level of .05 using 2-tailed $t$ tests for paired or dependent samples. The null hypothesis was rejected. A lower mean score on the Group Work Attitude Survey indicates a more positive attitude toward group work. The results are shown in Tables 1 and 2.

Table 1

$t$ test Result—Pre- and Posttest, Group Work Attitude Inventory

<table>
<thead>
<tr>
<th>Groups</th>
<th>Number</th>
<th>Standard Deviation</th>
<th>Mean</th>
<th>$t$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest</td>
<td>43</td>
<td>6.19</td>
<td>25.1</td>
<td>3.52</td>
</tr>
<tr>
<td>Posttest</td>
<td>43</td>
<td>4.60</td>
<td>22.4</td>
<td></td>
</tr>
</tbody>
</table>

$p < .05$

Table 2

$t$ test Result—Pretest and 2 Months Later, Group Work Attitude Inventory

<table>
<thead>
<tr>
<th>Groups</th>
<th>Number</th>
<th>Standard Deviation</th>
<th>Mean</th>
<th>$t$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest</td>
<td>43</td>
<td>6.19</td>
<td>25.1</td>
<td>3.50</td>
</tr>
<tr>
<td>2 months later</td>
<td>43</td>
<td>4.42</td>
<td>22.7</td>
<td>$p = .001^*$</td>
</tr>
</tbody>
</table>

$p < .05$
A Cronbach's alpha and a test-retest correlation were performed for the Group Work Attitude Inventory in this study. The Cronbach's alphas were .8965 for the pretest, .8358 for the posttest, and .8220 for the 2-months-later test. The test-retest correlation results were .5938 for the pretest/posttest, .8443 for the posttest/2-months-later test, and .6832 for the pretest/2-months-later test.

Hypothesis 1B proposed: BSN students experiencing a deliberate, planned cooperative learning environment over a semester will have different mean Group Experience Rating Survey scores measured at the end of the semester than the mean Group Experience Rating Survey scores measured at the beginning of the semester. The null hypothesis tested was: BSN students experiencing a deliberate, planned cooperative learning environment over a semester will show no change in the mean Group Experience Rating Survey scores measured at the end of the semester than the mean Group Experience Rating Survey scores measured at the beginning of the semester. Each student completed both a pretest (before intervention) and posttest (after intervention) using the Group Experience Rating Survey (Appendix C, question 1). This instrument measured the student's attitudes toward group work with a 7-point semantic differential scale using a series of eight bipolar adjectives. The scoring ranged from 1 to 7 for each item with the lower number being the most positive.

Means were determined for the composite scores of each group (pretest and posttest). This hypothesis was tested at an alpha level of .05 using a 2-tailed t test for paired or dependent samples. The null hypothesis was rejected. A lower mean score on the Group Experience Rating Survey indicates a more positive group experience. The results are shown in Table 3. These findings lend support for the first conceptual hypothesis.
The second conceptual hypothesis was: There is a difference in the frequency of social skills demonstrated by BSN students after experiencing a deliberate, planned cooperative learning environment. From this hypothesis, three subhypotheses were identified.

<table>
<thead>
<tr>
<th>Groups</th>
<th>Number</th>
<th>Standard Deviation</th>
<th>Mean</th>
<th>( t )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest</td>
<td>43</td>
<td>8.61</td>
<td>27.7</td>
<td>4.76</td>
</tr>
<tr>
<td>Posttest</td>
<td>43</td>
<td>8.21</td>
<td>23.1</td>
<td>( p = .000^* )</td>
</tr>
</tbody>
</table>

*\( p < .05 \)

Hypothesis 2A proposed: BSN students experiencing a deliberate, planned cooperative learning environment will demonstrate a different mean frequency of maintenance functions by the end of the semester than demonstrated at the beginning of the semester. The null hypothesis tested was: There will be no change in the mean frequency of maintenance functions from the beginning of the semester to the end of the semester of BSN students, experiencing a deliberate, planned cooperative learning environment. Each student group was observed for 20 minutes at both the beginning and end of the semester to determine the frequency of maintenance functions exhibited by each student in that time frame while working in cooperative learning groups. The Maintenance Function Observation Sheet (Appendix B) was used by the faculty to document this frequency. This instrument is a closed-ended tool, a checklist of the six social skills (maintenance functions).
The frequency of maintenance functions that occurred during the 20-minute observation were totaled for each student and means were determined for the composite scores of each observation. This hypothesis was tested at an alpha level of .05 using a 2-tailed \( t \) test for paired or dependent samples. The null hypothesis was rejected. The results are shown in Table 4.

**Table 4**

<table>
<thead>
<tr>
<th>Groups</th>
<th>Number</th>
<th>Standard Deviation</th>
<th>Mean</th>
<th>( t )</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Observation</td>
<td>43</td>
<td>2.66</td>
<td>3.0</td>
<td>6.30</td>
</tr>
<tr>
<td>2nd Observation</td>
<td>43</td>
<td>3.70</td>
<td>7.0</td>
<td>( p = .000^* )</td>
</tr>
</tbody>
</table>

\( ^* p < .05 \)

Hypothesis 2B proposed: BSN students experiencing a deliberate, planned cooperative learning environment will have different mean maintenance function Comfort Survey scores measured at the end of the semester than the mean maintenance function Comfort Survey scores measured at the beginning of the semester. The null hypothesis tested was: There is no change in mean maintenance function Comfort Survey scores from the beginning of the semester to the end of the semester of BSN students experiencing a deliberate, planned cooperative learning environment over a semester. Each student completed both a pre- and postintervention Comfort Survey (Appendix C, question 2). The Comfort Survey measured the students' comfort in using the six maintenance functions. This tool utilizes rating questions with "always" and "never" as end points between the seven
graduations for each behavior. The scoring ranged from 1 to 7 for each item with the lower number being "always.

Means were determined for the composite scores of each group (pretest and posttest). This hypothesis was tested at an alpha level of .05 using a 2-tailed t-test for paired or dependent samples. The null hypothesis was rejected. A lower mean score on the Comfort Survey indicates greater comfort in using maintenance behaviors. The results are shown in Table 5.

Table 5

<table>
<thead>
<tr>
<th>Groups</th>
<th>Number</th>
<th>Standard Deviation</th>
<th>Mean</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre Survey</td>
<td>43</td>
<td>4.31</td>
<td>17.7</td>
<td>5.98</td>
</tr>
<tr>
<td>Post Survey</td>
<td>43</td>
<td>4.10</td>
<td>14.3</td>
<td>p = .000*</td>
</tr>
</tbody>
</table>

*p < .05

Hypothesis 2C proposed: BSN students experiencing a deliberate, planned cooperative learning environment have different mean Maintenance Function Usage Survey scores measured at the end of the semester than the mean Maintenance Function Usage Survey scores measured at the beginning of the semester. The null hypothesis tested was: There will be no change in mean Maintenance Function Usage Survey scores from the beginning of the semester to the end of the semester of BSN students experiencing a deliberate, planned cooperative learning environment over a semester. Each student completed a Maintenance Function Usage Survey (Appendix C, question 3) at the beginning and end of the semester. The Maintenance Function Usage Survey measured the student's frequency of using the six maintenance
functions. This tool utilizes rating questions with "always" and "never" as end points between the seven graduations for each behavior. The scoring ranged from 1 to 7 for each item with the lower number being "always.

Means were determined for the composite scores of each group (pretest and posttest). This hypothesis was tested at an alpha level of .05 using a 2-tailed t test for paired or dependent samples. The null hypothesis was rejected. A lower mean score on the Maintenance Function Usage Survey indicates greater usage of maintenance functions. The results are shown in Table 6.

<table>
<thead>
<tr>
<th>Groups</th>
<th>Number</th>
<th>Standard Deviation</th>
<th>Mean</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre Survey</td>
<td>43</td>
<td>4.61</td>
<td>19.0</td>
<td>6.23</td>
</tr>
<tr>
<td>Post Survey</td>
<td>43</td>
<td>4.24</td>
<td>15.4</td>
<td>p = .000*</td>
</tr>
</tbody>
</table>

*p < .05

These above findings lend support for the second conceptual hypothesis.

The third conceptual hypothesis was: There is a qualitative difference in the BSN student's ability to process group behavior after experiencing a result of a deliberate, planned cooperative learning environment. The null hypothesis tested was: BSN students experiencing a deliberate, planned cooperative learning environment over a semester will self-report no difference in direction, specificity, and quality of change in the use of social skills during processing from the beginning of the semester to the end of the semester in two different group situations. Each student completed both a pre- and postintervention survey containing two open-ended questions related
to their ability to promote successful group functioning. The first question (#4) asked: What do you currently do to ensure continued group success? This question explored the behaviors the students reported that they exhibited when the group was doing well in an effort to keep the group functioning successfully. The second question (#5) asked: What do you currently do to deal with "not so successful" group sessions? This question explored the behaviors the students reported that they exhibited to deal with problems when the group was not doing well.

The student responses were reviewed by the investigator, blinded as to whether the responses were pre- or postintervention. A coding system was designed for this review to facilitate the analysis of these data. This coding system consisted of 10 categories, including the group constructs used in this study. Six of the codes were the six maintenance functions described earlier. These categories was mutually exclusive, although a single student's response might have sections coded in different categories.

When the coding was completed, the blinding was removed and the responses organized in corresponding pre- and postintervention groups to analyze the self-reports of the students. This system provided a mechanism of giving meaning to the student responses as well as determining direction, specificity, and quality of reported behavior.

The qualitative presentation of these results will be addressed through the three categories of change in the social skills reported.

**Direction**

Responses on the pretest consisted primarily of nonmaintenance functions, task behaviors. These behaviors are directed primarily toward aiding the group in
accomplishing a task. These are easier behaviors to learn and consequently are more common within groups. Pretest responses included: "Keep group on track," "Keep group focused," and "Assign jobs." The posttest, on the other hand, contained responses that were primarily maintenance functions. These functions are those behaviors that are purposefully directed toward supporting the group by building more of a group feeling, intragroup respect, and rapport. These behaviors are more difficult to master, are affective in nature, and are less easily used by most group members. Posttest responses included: "Encourage others," "Positive feedback," and "Offering support." The change in direction from primarily nonmaintenance task behaviors to primarily maintenance behaviors is a positive change.

Specificity

Responses on the pretest primarily consisted of common, general, indefinite behaviors: "Listen," "Work hard," "Compromise," and "Be flexible." By the end of the semester, the students were able to better articulate exactly the behaviors they could use to impact on group function. These responses included: "Listen and make all members feel important"; "Letting everyone know what a good job they are doing"; "Try to analyze different points of view"; "I try to encourage everyone to participate and draw participation out from all participants"; "View self as a participant, rather than an observer"; and "Evaluate where we are at, where we want to go, and are we getting there?" These answers suggest that the students had a much clearer and more specific idea of what their responsibilities were within the group. This was a positive change.
Quality

The quality of the responses generally moved to a higher level over the semester. The pretest consisted primarily of a level of quality that did not relate the spirit of cooperation. These comments indicated less of a willingness to cooperate and work with a group. Pretest responses included: “Keep everyone on track,” “Reorganize the group,” “Break into smaller groups,” and “Complete my assigned duties.” In contrast, the posttest responses demonstrated a higher quality, an increased willingness to cooperate and work within the group structure. These posttest comments included: “Participate more and encourage others to participate,” “Have the group redirect goals and decide how to work on the problem,” “Discuss problem with the group,” and “Work together, share responsibility.” These comments indicate a positive change in the quality of social skill behavior.

While the pattern of behavior development in social skills over the semester was primarily positive and of high quality, one nonmaintenance function, nonfunctional behavior, increased from the pretesting to posttesting. Nonfunctional behaviors do not assist the group in meeting their goals, but instead are more self-serving in nature and are aimed at meeting the needs of the individual within the group. Nonfunctional behaviors reported included: “Venting,” “Do more myself to ensure work is done,” “Move on,” and “Keep my mouth shut.” These behaviors were reported for the most part on the posttest in response to question #5: What do you currently do to deal with not so successful group sessions? This was not a positive change.

It is the judgment of this researcher that these data lend support to the conceptual hypothesis through the direction, specificity, and quality of change of the
dependent variable. It should be noted, however, that a small negative change, an increase in intended use of nonfunctional behaviors in difficult group situations, occurred when dealing with not-so-successful group sessions.

Summary

This chapter provided the results of the six hypotheses tested in this study. Five of the six null hypotheses were rejected, demonstrating significance at alpha level of .05. Five of the hypotheses were tested using the $t$ test, while a sixth hypothesis was analyzed using coding and content analysis in order to fully appreciate the value of these qualitative data. The significance of these results is addressed in the following chapter.
CHAPTER V

DISCUSSION

The purpose of this study was to examine the effects of a deliberate, planned cooperative learning environment on the attitudes, social skills, and processing of baccalaureate nursing students. A discussion of the results occurs in this chapter.

Background

A convenience sample of 43 students (Registered Nurses) randomly assigned to one of eight cooperative learning groups were the subjects for this study. Cooperative learning was used as a teaching methodology for the entire class of 15 weeks duration. The three research questions generated in Chapter I of this study are the framework for examining and giving meaning to the results of this study.

The first research question asked: What effect does a deliberate, planned cooperative learning environment have on the attitudes of BSN students toward group work? The results of this study indicate that the attitude of BSN students toward group work improved \( p < .05 \) over the semester in which they worked in cooperative learning groups and that attitude held at 2 months after the cooperative learning groups dissolved \( p < .05 \).

The second research question asked: What effect does a deliberate, planned cooperative learning environment have on the frequency of the BSN student's social skills? The results of this study indicate that the frequency of the BSN student's social skills increased \( p < .05 \) over the semester. In addition, the student's
perception of their comfort in using these skills and their perceived usage of these social skills also increased \((p < .05)\).

The third research question asked: What effect does a deliberate, planned cooperative learning environment have on the BSN student’s ability to process? The results were mixed. The students reported primarily positive change in direction, specificity, and quality in the use of social skills during processing. Working with not so successful groups elicited a small negative change in quality when nonfunctional group behaviors were reported.

Findings Related to Existing Theory and Research

The positive attitude of group involvement is the nonachievement variable that is most often cited in the literature. This entails the student’s view regarding motivation, enjoyment, support, and success present in group work, value of the group, and anxiety toward the group (Swartz, 1989). In this regard, the preponderance of the literature that utilized attitude as a variable found a positive change in attitude when cooperative learning was used. The meta-analysis of 122 students at the college level by Johnson, Maruyama, and Johnson (1981) shows research strongly supporting many affective changes in students from a cooperative learning environment including positive attitudes. This study supports the work of these authors. The findings of this study are consistent with the more recent research of Austin (1996), Warner et al. (1994), Beeken (1991), Goodfellow (1995), Glendon and Ulrich (1992), Tinto (1995), Abrami (1995), Ventimiglia (1994), Beck (1992), Hiebart (1996), Horwitz (1993), and Hughes and Townley (1994), who also used attitude as a variable. No studies examined attitude longitudinally to see if the change in attitude was sustained beyond the cooperative learning experience. In this study
attitude was measured over a period of 5 months at three different points of time: (1) before the beginning of the intervention; (2) 3 months later, after the completion of the intervention; and (3) 2 months after the intervention terminated.

In cooperative learning the development of social skills becomes as important as the learning itself. The literature supports the importance of college students acquiring the necessary social skills of listening, negotiating, sharing, leading, following, and taking responsibility (Bruffee, 1995; Deutsch, 1962; Johnson & Johnson, 1987; Winston, Bonney, Miller, & Dagnay, 1988; Wlodkowski, 1985). The development of these social skills is the underpinning of high quality group work. These skills, the ability to cooperate, are identified by specific behaviors exhibited during the group experience. At the collegiate level there are fewer studies of the impact of cooperative learning on social skills; however, the majority of the research using social skills as a variable indicates a positive effect on social skill development.

The results of this study are consistent with Hughes and Townley (1994), who in a large study at two California universities, explored the improvement of social skills in graduate students using a cooperative learning format. They found student perceptions in their ability to use social skills improved. This study is also consistent with those studies (Asten, 1992; Jackson, 1986; Ortiz, 1992; Solomon et al., 1990) that examined positive interactions, effective communication, constructive conflict resolution, prosocial behavior, and qualitative or quantitative verbal interactions. One of three nursing research works was supported by this study. Garcia (1993) found an increase in interactions using cooperative learning as an intervention.
Johnson and Johnson (1975) identified processing as one of the most necessary tasks for a group to perform to assure feedback so the group can enhance its performance and effectiveness. However, only one study was identified that used processing as a variable. Fertig's (1994) study looked at the effect of processing, not the process of processing. His study found that there were no significant increases in interpersonal skills as a result of processing. No higher education research (including nursing) addressed the process of processing. In this study, the process of processing was examined. The self-reported group behaviors during successful and unsuccessful group work were identified. The students reported an inclination to use maintenance behaviors when the group was functioning well and the tendency to use more nonfunctional behaviors when their group was experiencing less success.

Limitations of the Study

Concerns

In addition to the design limitations covered in Chapter III, two possible threats to external validity need to be addressed. These threats include:

1. The Hawthorne effect—This occurs when study participants respond in a certain manner because they are aware that they are being observed. This could have affected the results, especially during the observation of maintenance functions (behaviors) during group work.

2. Experimenter effects—This threat to external validity occurs when the results of the study are affected by characteristics of the researcher. This is of real concern as the researcher was present for each class session, completed one half of the observations, and was the lead instructor for the class.
Control

Two controls were in place to aid in the reduction of threats to validity. Interrater reliability was established between the two experienced observers to decrease the probability of instrumentation effect. The interrater reliability was 1.0. Secondly, anonymity of student measures was provided.

Two types of triangulation were used to increase the overall validity of this study: triangulation of unit of analysis and methodological triangulation. Triangulation of unit of analysis entails deliberately varying the analytic focus of the investigation (Talbot, 1995). In assessing the students' social (interactive) skills, both the nature and quality of the social skills themselves were examined, as well as individual's perceptions of comfort and use of those social skills. This was achieved through observation of the use of social skills during group work (Maintenance Function Observation Sheet, Appendix B) where the social skills were the focus of investigation, and the self-report rating questions (Comfort Survey and Maintenance Function Usage Survey, Appendix C, questions 2 and 3) where the individual was the focus of the investigation. However, the results of the observations were not matched to the self-report scores, which would have added more to the validity.

Methodological triangulation refers to the use of different data collection techniques in the same study. There are two types of methodological triangulation: within-method and across-method; both of these were used. Within-method is used when the phenomenon being studied is multidimensional and two or more different instruments are used to measure the same phenomenon (Burns & Grove, 1997). This type of methodological triangulation was achieved when the Group Work Attitude Inventory (Appendix A) and the Group Experience Rating Survey (Appendix C,
question 1) were used to measure attitudes toward group work. Across-method involves combining research strategies from two or more research traditions in the same study (Burns & Grove, 1997). This type of methodological triangulation was achieved with the use of the Processing Survey (Appendix C, questions 4 and 5). This open-ended survey contained two questions, qualitative in nature, that were analyzed through coding and content analysis.

In an attempt to ease the experimenter effect, the third (and last) time the Group Work Attitude Inventory (Appendix A) was given the researcher was not present. It was administered by another faculty, in another class, 2 months after the cooperative learning experience was completed. This hopefully provided a more neutral situation for the students to complete this inventory.

Recommendations for Further Research

It has only been in the last 8 to 9 years that any serious attention has been given to cooperative learning in higher education by significant numbers of people. Most of the literature and research focuses around the primary and secondary educational process. This often causes difficulty in understanding the research base for cooperative learning with college and adult learners. The bulk of higher educational research in cooperative learning centers around achievement as a variable. The research base for collegiate learners using cooperative learning is growing, but there continue to be gaps.

Of the affective components in this study—attitudes, social skills, and processing, attitudes is the one effect of cooperative learning that has been studied the most. The literature, for the most part, indicates that attitude improves within a cooperative learning environment. Attitude, to these researchers, has a wide variety
of meanings. To some it means anxiety toward the group, motivation, value of the
group, value of interacting with others, usefulness of the group, self-esteem, and
locus of control; to others it may mean something entirely different. "Attitudes" has
become a catch-all for a variety of affective functions. It would be helpful if the
researchers would more accurately define in their reporting exactly which attitudes
they had explored so better comparisons could be made and better conclusions be
drawn. In addition, there has simply not been enough research conducted with this
variable to accurately predict which attitudes change when cooperative learning is
utilized.

The development of social skills, the heart of cooperative learning, is poorly
represented in the research as a variable of study. Acquiring these data is time-
consuming and requires observation, rather than a paper-and-pencil exercise, which
may be why there is less interest in this variable. The research that has been done
using social skills as a variable has been positive. There seem to be real gains in the
ability to interact, compromise, negotiate, resolve conflicts, and problem solve. The
students are also able to transfer this to situations outside the classroom. It is
recommended that this variable continue to be studied as it is an essential component
of the cooperative learning experience.

Like most efforts in evaluation, processing the group experience becomes an
afterthought and not well tended to. Processing is the piece of cooperative learning
that allows the group to reflect on its work, the outcome as well as the process. It
allows for feedback and an opportunity to discuss what went right and what needs to
be changed. It lets the members determine what they liked and didn't like about the
session and how they can change their behavior to better meet their goals. Evaluation
is essential for continued group success. As this research indicated, when the group
was doing well, the students indicated that they would use appropriate social skills to ensure continued group success. Conversely, when the group was not doing well, these students indicated that they would resort to using more nonfunctional (self-serving) behaviors in addressing their group's problems. These phenomena need to be researched further.

At this point in time, there is one research study that looked at group processing (Fertig, 1994). This study examined the effects of small group processing on the acquisition of interpersonal skills; it did not investigate the process of evaluation itself. This is a significant void in the knowledge about group processing as an element of cooperative learning with college-age students. This, too, is recommended for further study.

Further research is also needed with an experimental control group design to determine whether such interventions as depicted in this study demonstrate significant results. The use of random assignment and a control group could verify or refute this study's results. Additional studies with varying treatment intensities or configurations are also needed. This would be a useful course for future research endeavors as results in this direction would be more cost-effective and less time-consuming for those wanting to utilize the cooperative learning strategy.

This study was based on the importance to higher education in producing educated, responsible people, well-prepared for the workplace. Many organizations have adopted management approaches that require cooperative practices of their employees. Can cooperative skills learned in the educational setting be transferred to the work setting? This needs to be explored through further research. This study examined the attitudes (motivation, enjoyment, support, success present in group work, as well as perceived value of the group and anxiety toward group situations) of
students 2 months after the completion of the cooperative learning experience. These attitudes prevailed over the 2-month period, but do they prevail long enough to be used in the work setting and can they be transferred to the work setting? Again, this indicates direction for further research.

Implications of Study for Professional Practice

The results of this study suggest that a deliberate, planned cooperative learning environment over a semester offered these students a rich opportunity to become comfortable with group work, learn necessary social skills, and understand the necessity of evaluation to ensure continued group success. By assuming responsibility for achieving group goals, working together cooperatively, and enjoying or suffering the consequences of their decisions, these students began to clarify for themselves the abilities they bring to the group and the difficulties that cooperative practice imposes on them. As these students discovered, the experience of group work is complex. These complexities were dealt with during the group work itself and during processing where evaluation of the group's work could be accomplished. During this reflection the members were able to analyze problems and confirm good approaches.

If the complexity of group work in an academic setting mimics the cooperative behavior needed when these nurses become members of a health care team, and if this behavior is transferrable to the work setting, then these nurses will be ready to be contributing members of this team. Cooperation is an essential component of positive and effective functioning of the health care team. There are few systems where this characteristic is so vital and crucial. To assess, plan, implement, and evaluate effective nursing care, interdisciplinary communication is
mandatory. If these are the desired behavioral outcomes for the development of health-care professionals, then educational programs need to evaluate their curricula to determine if the attainment of these behaviors is being fostered. To achieve these skills, nursing educators must create situations in which students may practice and succeed in their use.

Higher education needs to take advantage of teaching alternatives that can prepare students to work cooperatively upon graduation. This study addressed the needs of one group of BSN students. It offered some successful alternatives to traditional methods, using an intervention that was strong in both intensity and duration. Further research could also explore whether these tactics could be used with less intensity and achieve the same ends. Higher education, nursing included, needs to graduate educated, responsible people, well-prepared for the work place. We need to be attuned to different teaching methodologies, be willing to take risks, break out of our paradigms, and construct a learning environment that meets the current and future needs of our students.
Appendix A

Group Work Attitude Inventory
GROUP WORK ATTITUDE INVENTORY

Directions: The following statements are about group work. Please read each statement carefully and decide whether it describes the way you feel about working in groups. Then, find the number of the statement on the answer sheet, and blacken one of the spaces according to the following directions:

If you strongly agree with the statement, blacken space 1.

If you agree with the statement, blacken space 2.

If you disagree with the statement, blacken space 3.

If you strongly disagree with the statement, blacken space 4.

Use a No. 2 pencil. Be sure to blacken only one space for each statement. Mark your answers only on the answer sheet. Please do not write on this form.

Be sure to answer every question. You will have about 5 minutes to complete the 12 statements of the inventory. Remember to answer each statement according to the way you feel at the present time.

1. Working in groups is something which I enjoy very much.
2. Doing group assignments is fun.
3. Group leaders make teamwork interesting.
4. No matter how hard I try, I cannot learn to work well in groups.
5. Teamwork is of great importance to success in nursing.
6. It is important to know how to work in teams in order to get a good job.
7. It doesn't disturb me to participate in group assignments.
8. I am good at doing teamwork assignments.
9. It scares me to work in groups.
10. Team members are willing to give me individual help.
11. I do group projects only because I have to.
12. I have a real desire to learn to work in groups.

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Appendix B

Maintenance Function Observation Sheet
# MAINTENANCE FUNCTION OBSERVATION SHEET

<table>
<thead>
<tr>
<th>FUNCTIONS</th>
<th>PARTICIPANTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintenance</td>
<td></td>
</tr>
<tr>
<td>1. Harmonizing</td>
<td></td>
</tr>
<tr>
<td>2. Gate-keeping</td>
<td></td>
</tr>
<tr>
<td>3. Encouraging</td>
<td></td>
</tr>
<tr>
<td>4. Compromising</td>
<td></td>
</tr>
<tr>
<td>5. Standard-setting/Testing</td>
<td></td>
</tr>
<tr>
<td>6. Sensing/Expressing Feelings</td>
<td></td>
</tr>
</tbody>
</table>
Appendix C

Student Survey
GROUP EXPERIENCE RATING SURVEY

This Student Survey is part of a doctoral study to investigate cooperative learning groups in the teaching of NURS 476, Leadership/Management at Ferris State University in the Jackson site. Completion of this Student Survey is voluntary. It is in no way connected to your participation or progress in this class. These narratives are anonymous to the researcher and will be known only to you through the number you chose. They will be placed in a sealed envelope, unavailable to anyone until after the completion of this class. The outcomes of this research will be shared with you Winter Semester.

1. Reflect on group experiences both inside or outside the academic setting. Rate your group experiences by placing a “X” on the appropriate line between paired adjectives indicating on the continuum how you feel about groups.

<table>
<thead>
<tr>
<th>Easy</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th>Difficult</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stressful</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Enjoyable</td>
</tr>
<tr>
<td>Stimulating</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Stifling</td>
</tr>
<tr>
<td>Cooperative</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Competitive</td>
</tr>
<tr>
<td>Frustrating</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Facilitative</td>
</tr>
<tr>
<td>Valuable</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Worthless</td>
</tr>
<tr>
<td>Effective</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Ineffective</td>
</tr>
</tbody>
</table>

Overall I feel that working in groups is an experience I consider:

<table>
<thead>
<tr>
<th>Positive</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th>Negative</th>
</tr>
</thead>
</table>

ID #_________________________

Group_________________________
Harmonizing: Persuading members to analyze their differences in opinions constructively; searching for common elements in conflicts; trying to reconcile disagreements; easing tensions and increasing enjoyment of group members.

Gate-Keeping: Showing good communication skills and making sure that each group member understands what other members are saying; attempting to keep communication channels open; facilitating participation of others; suggesting procedures for discussing group problems.

Encouraging: Urging everyone to participate; giving recognition for contributions; demonstrating acceptance to ideas of others; being friendly and responsive to group members.

Compromising: Offering compromise when one's own status or idea is involved in a conflict; yielding status, admitting error; disciplining oneself to maintain group cohesion.

Standard-Setting/Testing: Expressing group standards and goals to make members aware of direction of work and of progress being made.

Sensing/Expressing Feelings: Asking members how they feel about the way in which the group is working and about each other and sharing their own feelings about both.

**COMFORT SURVEY**

2. Use the definitions provided above in responding to the following statement. Place a “X” on the appropriate line on the continuum of extremes. Reflect on group experiences both inside or outside the academic setting.

While working in groups, to what degree are you **comfortable** using:

<table>
<thead>
<tr>
<th></th>
<th>always</th>
<th>sometimes</th>
<th>never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harmonizing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gate-Keeping</td>
<td></td>
<td></td>
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<tr>
<td>Encouraging</td>
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<tr>
<td>Compromising</td>
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<td></td>
</tr>
<tr>
<td>Standard-setting/Testing</td>
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<tr>
<td>Sensing/Expressing Feelings</td>
<td></td>
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</tr>
</tbody>
</table>
**Harmonizing**: Persuading members to analyze their differences in opinions constructively; searching for common elements in conflicts; trying to reconcile disagreements; easing tensions and increasing enjoyment of group members.

**Gate-Keeping**: Showing good communication skills and making sure that each group member understands what other members are saying; attempting to keep communication channels open; facilitating participation of others; suggesting procedures for discussing group problems.

**Encouraging**: Urging everyone to participate; giving recognition for contributions; demonstrating acceptance to ideas of others; being friendly and responsive to group members.

**Compromising**: Offering compromise when one’s own status or idea is involved in a conflict; yielding status, admitting error; disciplining oneself to maintain group cohesion.

**Standard-Setting/Testing**: Expressing group standards and goals to make members aware of direction of work and of progress being made.

**Sensing/Expressing Feelings**: Asking members how they feel about the way in which the group is working and about each other and sharing their own feelings about both.

### MAINTENANCE FUNCTION USAGE SURVEY

3. Use the definitions provided above in responding to the following statement. Place a “X” on the appropriate line on the continuum of extremes. Reflect on group experiences both inside or outside the academic setting.

While working in groups, to what degree do you use the behavior of:

<table>
<thead>
<tr>
<th></th>
<th>always</th>
<th>sometimes</th>
<th>never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harmonizing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gate-Keeping</td>
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<tr>
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</tr>
<tr>
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<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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PROCESSING SURVEY

4. What do you currently do to ensure continued group success?

5. What do you currently do to deal with “not-so-successful” group sessions?
Appendix D

Human Subjects Approval
To: Dr. Zoe Barley
   Mary J. Cairy

From: Richard A. Wright, Chair
      Human Subjects Institutional Review Board

Subject: HSIRB Project # 96-08-01

Date: August 30, 1996

This is to inform you that your project entitled "The Effects of a Cooperative Learning Environment on the Attitudes, Social Skills and Processing of Baccalaureate Nursing Students," has been approved under the exempt category of research. This approval is based upon your proposal as presented to the HSIRB, and you may utilize human subjects only in accord with this approved proposal.

Your project is approved for a period of one year from the above date. If you should revise any procedures relative to human subjects or materials, you must resubmit those changes for review in order to retain approval. Should any untoward incidents or unanticipated adverse reactions occur with the subjects in the process of this study, you must suspend the study and notify me immediately. The HSIRB will then determine whether or not the study may continue.

Please be reminded that all research involving human subjects must be accomplished in full accord with the policies and procedures of Western Michigan University, as well as all applicable local, state, and federal laws and regulations. Any deviation from those policies, procedures, laws or regulations may cause immediate termination of approval for this project.

Thank you for your cooperation. If you have any questions, please do not hesitate to contact me.

Project Expiration Date: August 30, 1997
August 21, 1996

Mary J. Cairy
Associate Professor
Nursing Department
H-C 213

Dear Mary:

Your study "The effects of a cooperative learning environment on attitude, social skills and processing of baccalaureate nursing students" has been approved by the Ferris State University Human Subjects Review Committee.

Sincerely,

[Signature]

John J. Pole, O.D., M.S.
Professor

cao
Appendix E

Consent Form—Group Work Attitude Inventory
CONSENT FORM
GROUP WORK ATTITUDE INVENTORY

Explanation of Research:

This inventory is being conducted as part of a doctoral study to investigate cooperative learning groups in the teaching of Leadership/Management, NURS 476 at Ferris State University. Students in the Jackson site will be asked to participate voluntarily in this research. Students will be asked to complete the Group Work Attitude Inventory and give permission for student work to be photocopied, with all Inventory results remaining anonymous and student work remaining confidential. The inventory scores will be shared with you winter semester.

Today you will be asked to read 12 statements relating to group work, decide how you feel about the statements, and record your responses on a machine-scanned answer sheet. The survey will take approximately 5 minutes to complete.

You are free not to participate at all or to withdraw your participation from the study at any time without recrimination. Your grade will not be affected by your decision. Professor Mary Cairy will be the investigator for this study. The data gathered with the Inventory will be anonymous and can not be linked to your name.

Consent to Participate:

I have been informed that this study is being conducted to investigate cooperative learning groups in the teaching of Leadership/Management. The purposes and procedures of the study have been explained to me, and I voluntarily agree to participate in the research.

I understand that I am free to withdraw my participation at any time without recrimination.

I understand all information will remain anonymous or completely confidential and that the results of the study will be available to me upon request.

Name (please print) ____________________________________________

Signature_____________________________________________________

Date________________________
Appendix F

Permission to Use Group Work Attitude Inventory
December 4, 1997

Professor Mary Cairy
230 Birkham Health Center
Ferris State University
Big Rapids, MI 49307

Dear Professor Cairy

I am the author of the Group Work Attitude Inventory which is not copyrighted; I consider it to be in the public domain. UMI may supply copies of this inventory on request.

Sincerely

Rose Ann Swartz, Ph.D.

Big Rapids, Michigan 49307
BIBLIOGRAPHY


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