The Development of an Instrument to Assess the Effectiveness of Small Group Learning: The Contribution of Students', Teachers' and Experts' Views

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ABSTRACT

The Development of an Instrument to Assess the Effectiveness of Small Group Learning: The Contribution of Students', Teachers' and Experts' Views

Christina Kouros

Several studies conclude that students who work in cooperative classrooms learn more, enjoy the content better and have more positive feelings towards their classmates (Johnson & Johnson, 1989; Johnson, Maruyama, Johnson, Nelson, & Skon, 1981). However, regardless of the promising research findings there are problems associated with this type of learning which are not always addressed in the literature. Most of the existing instruments used in research fail to capture relevant aspects of small group learning.

The aim of the study was to develop an instrument that would fully assess the effectiveness of small group learning than has been done so far with existing instruments. The data used to develop the instrument came from four main sources: 1) observation of actual small group work in four classrooms, as well as informal interviews conducted with students enrolled in an English literature course (N=39) at a junior college; 2) structured questionnaires where forty-one grade nine students were asked to list positive and negative aspects of small group work; 3) an item and other

analysis of all known existing instruments; and 4) a survey of student, teacher, and expert reactions to the items being considered for inclusion in the new instrument.

The observational and interview data gave rise to questions concerning the exhaustiveness of existing instruments. In particular, few instruments seemed to allow for certain kinds of negative results to emerge from investigation. By developing this new instrument, new dimensions were highlighted that were not previously addressed in the literature. The implications of these results for practitioners are discussed.

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"I enjoy working in groups."

"My mark went down because I was in a group that did not work well together."

INTRODUCTION

Understanding the dynamics of group work, more specifically attitudes towards group work, is the key to understanding the effectiveness of the cooperative learning approach. Over the past few years the pervasive use of cooperative groups can be seen in industry, government, the private sector and more recently in education. Teamwork skills are increasingly being recognized by educators and employers as enhancing productivity. Important teamwork skills are: understanding and contributing to the group goals; planning and making decisions with others and supporting outcomes; respecting the thoughts and opinions of others in the group; and seeking a team approach as appropriate (The Conference Board of Canada, 1992). Changing the educational experience by making it more cooperative and less competitive and individualistic as it is traditionally viewed, will lead to

greater productivity in and out of the educational milieu (Adam & Haem, 1990).

Cooperative learning is a set of instructional strategies that encourages students to share their skills and abilities with other members of the group in order to achieve a common goal (Johnson & Johnson, 1989; Slavin, 1990). The crucial components of the various cooperative learning methods that have been developed are individual accountability and positive interdependence. Cooperative learning activities are structured in such a way that each member of the group is accountable not only for their own learning but also for the learning of the other members. In addition, each student has a vested interest in the group's success. Common goals, shared tasks and resources, and group rewards are techniques frequently used to promote interdependence between group members (Johnson & Johnson, 1989; Slavin, 1990). A plethora of research shows that cooperative group work in classrooms promotes positive cognitive and affective outcomes in the domains of student academic achievement; student attitudes towards subject matter and fellow classmates; academic self-esteem; and social and working relationships between mixed-sex, mixed-ability and mixed-ethnic students (Johnson & Johnson, 1989; Johnson, Johnson, Scott & Ramolae, 1985; Johnson, Maruyama, Johnson, Nelson, & Skon, 1981; Webb, 1989).

Based on these encouraging findings, school boards are investing an enormous amount of time and money training educators to implement

cooperative learning in their classrooms. To various degrees teachers are switching from a whole class presentation format to cooperative group learning. However, as encouraging as the results of the research studies may be, working in small groups is not always a productive or enjoyable learning experience for students (Salomon & Globersom, 1989). The positive effects of working in small groups are stressed in the literature while there is little emphasis placed on why small group work does not produce the desired results on some occasions.

Anecdotal assessments and systematic observations conducted by a research team at the Centre for the Study of Classroom processes, at Concordia University, revealed that a meaningful number of students do not enjoy working in groups to learn (Kouros, d'Apollonia, Poulsen, Howe and Abrami, 1993; Poulsen, Abrami, Kouros and Chambers, 1993). Studies were conducted on 137 junior high school students learning a geometry unit and 298 college students enrolled in six biology classes. The researchers observed and recorded the interactions and behaviours that occurred as group members worked on academic tasks. During the course of the cooperative learning implementation numerous students reported informally that they did not enjoy working in groups in order to learn the assigned material. There were a number of explanations offered by the students: a) some students were concerned that their grades would suffer because of lack of ability or apathy of group members; b) some students believed that

they did more than their share of the work; c) some students had personal problems with the team members that they were assigned to work with; and d) others felt that working in groups held them back and preferred working on their own.

Why doesn't small group learning work all the time? Which aspects of the small group experience promote positive and/or negative attitudes in students? How pervasive are these and other concerns that students have? Are they addressed in the literature? Do the instruments presently used to assess student attitudes tap into these issues? This study examined the appropriateness of the existing instruments in assessing student attitudes towards small group learning. To do so by developing a new questionnaire.

Purpose of the Study

The main purpose of the study was to develop a questionnaire that better reflects the small group learning experience, than existing instruments. Many of the instruments used in small group research may be inappropriate or inadequate for they were initially designed to assess the classroom learning environment and not the small group learning environment. Furthermore, very few instruments take into account the reactions of individuals who have experienced small group learning first hand in designing the questionnaire. In this study, the views of students, teachers and experts in the field of cooperative learning, were used to guide

the item selection for the new attitude questionnaire. Steps were taken in creating the questionnaire to make it more comprehensive than any existing instrument (content validity), to have higher reliability, and superior criterion-related and construct validity than any existing instrument. This study represents a first stage in the much longer research process of developing and testing the reliability and validity of a new instrument whose eventual purpose is to predict student learning outcomes.

Student attitudes toward cooperative learning are an important component of the educational process for at least two reasons. First, student attitudes are hypothesized to reflect the quality of a student's learning experience. Consequently, knowing student attitudes toward small group work can facilitate the development of better cooperative learning techniques and classroom implementations. Second, student attitudes are hypothesized to influence the manner and degree of a student's motivation to learn and their learning behaviors (e.g., participation, persistence, intensity, task choice, etc.). Attitudes, once formed, influence how students think, feel, and behave. Positive student attitudes may facilitate the use of cooperative learning in the classroom; negative student attitudes may impede the use of cooperative learning.

Phases of the Study

This study focused on the first phase of questionnaire development,

namely, pinpointing the items which best captured the experience of working in groups. This phase was divided into three stages. The first stage of the research focused on developing a comprehensive pool of items. The item pool was comprised of: a) items from questionnaires developed by other researchers; b) new items generated from informal interviews conducted with students; and c) new items generated from structured questionnaires where students were asked to list positive and negative aspects of small group work. The second stage of this study dealt with organizing and reducing the item pool. In the final stage, students, teachers and experts in the field of cooperative learning rated the selected statements for relevancy to small group work.

In addition, the characteristics of the raters were examined to determine if the rating of the items were influenced by them. For example, did students, teachers and experts have different opinions as to what was considered relevant to small group work? Did gender influence the item ratings? Did other factors, such as experience with group work or liking of group work influence the rating of the items? The final result was a comprehensive collection of statements that received the highest relevancy ratings from students, teachers and experts. By examining the source of the most relevant statements (i.e., from which questionnaires they came from) the adequacy of existing instruments and the newly generated items was examined. The new instrument incorporated student views about small

group work in addition to factors derived from previous research, therefore, the information garnered from this instrument should be of great interest and use to both educators and researchers.

Two Potential Uses of the Questionnaire

First Potential Use. The development of this new instrument has practical implications for it can suggest ways that teachers might improve student outcomes by creating classrooms which emphasize certain small group dimensions. Information about student attitudes can be provided to teachers so that they can restructure or improve groups for cooperative learning. In doing so, teachers are likely to change student attitudes and make cooperative learning a more effective and enjoyable learning experience. Teachers may also benefit on how to structure the task so that students will learn the material during the allocated time and reduce student resentment towards the group members and group work in general. Teachers can use information from this questionnaire as a "trouble-shooting" guide, because areas of group work that students have strong reactions towards are highlighted. For example, if students have strong negative attitudes towards being assigned a group grade, teachers can consider this information and assign individual grades to group efforts. Alternatively, teachers can have a small percentage of the final student grade be based on the group mark. In addition, information on student

attitudes can be utilized to improve teacher training with regard to implementing effective cooperative learning strategies in their classrooms. Information garnered from this measure can also be used to improve student training on how to effectively work with others in a group.

Second Potential Use. Creating a new and comprehensive questionnaire was necessary in order to address specific questions pertaining to small group work in subsequent research studies. Once the reliability and validity of the new questionnaire has been established, this instrument can be used to examine the impact of cooperative group work on student outcomes. Classroom environment instruments have been used as sources of predictor and criterion variables in a number of studies (Fraser, Giddings, McRobbie, 1992). Student perceptions of the classroom environment have been used to examine relationships between the nature of the classroom environment and student cognitive and affective outcomes.

Investigating student attitudes toward small group work will yield important insights about how these attitudes enhance or hinder learning. The measurement of these student attitudes will yield insightful predictions of how students will work and learn in subsequent small group learning experiences. The information gleaned from this instrument about student attitudes towards small group work can be used for various purposes in future research. First, future studies can investigate what these attitudes predict in terms of academic achievement and student learning in small

groups. Second, the information can be used to examine how attitudes toward specific aspects of group work (e.g., being able to express opinions, etc.) are related to the general satisfaction and liking of group work. Third, future studies can investigate if these student attitudes predict other outcomes, such as motivation. Fourth, future research can investigate the relationship between students attitudes and the types of behaviours that are exhibited in groups. Finally, future research can explore the relationship between students attitudes and academic and social self-esteem.

Significance and Importance of Study

In order for an instructional strategy to be effective in the classroom and for student learning to be maximized, students' attitudes towards the method must be taken into account by practitioners and researchers. Student opposition to working with others to achieve academic goals may hinder the effectiveness of cooperative learning strategies and thus, the positive effect of cooperative learning will not be realized in the classroom. Skills, such as cooperation, communication and conflict management and resolution, which are necessary in the work place and in society in general, will not be learned and fostered. If students are opposed to working with other students in order to achieve their academic goals, they may relinquish their efforts to continue working with others. A promising teaching strategy

will fail to reach its potential in the classroom.

LITERATURE REVIEW

Definition of Attitude

Educators have shown considerable interest in student attitudes for primarily two reasons. First, it is assumed that student attitudes influence student achievement. According to this line of reasoning, student academic achievement can be improved if positive student attitudes towards school are encouraged (Schibeci, 1984). However, Schibeci states that the attitude-achievement relationship is statistically relatively low. Forty-three studies that have examined the relationship between attitudes and achievement have a mean correlation of 0.16. The second line of reasoning is more ideological, that is, promoting positive student attitudes towards school and learning is an important goal of education.

Most educational research that has examined attitudes towards school have taken the definitions developed by social psychologists. Attitude has been defined in different ways by different experts in the field. Allport has over 16 definitions of attitude. These definitions have three essential features: a) "a preparation or readiness for favourable or unfavourable responses, b) which is organized through experience, and c) which is activated in the presence of all objects and situations with which the attitude is related" (Anderson, 1981, p.421). Fishbein (1967, p.8) states

that "an attitude is a mental and neural state of readiness, organized through experience, exerting a directive or dynamic influence upon the individual's response to all objects and situations with which it is related". Attitude is defined as "an idea charged with emotion which predisposes a class of actions to a particular class of social situations" (Triandis, 1971, p.2). Attitudes have been defined as "systems of positive or negative evaluations, emotional feelings, and pro or con action tendencies with respect to social objects" (Krech, Crutchfield, & Ballachey, 1962 cited in Fishbein, 1967), "degree of positive or negative affect associated with some object" (Thurstone, 1946 cited in Fishbein, 1967) and as a "moderately intense emotion that prepares or predisposes an individual to respond consistently in a favourable or unfavourable manner when confronted with a particular object" (Anderson, 1981, p.423).

Attitudes also have a set of characteristics. They vary in: a) direction, b) intensity, c) pervasiveness, d) consistency, and e) salience (Sax, 1980). The direction of an attitude refers to whether an individual views something as being favourable or unfavourable. Attitudes also differ in terms of intensity or strength. One student may have a mildly favourable attitude towards small group work, while another person may feel strongly antagonistic towards the same object. A third characteristic of attitude is pervasiveness or range. One student may strongly dislike one or two aspects of small group work while another student may dislike everything

concerning cooperation. Consistency refers to the fact that some people respond to an attitude scale in a consistent manner, while another person gives both favourable and unfavourable responses. For example, some students may state that they like working in small groups, while other students may claim that they like working with other students but they do not like being evaluated as a group. The last distinguishing feature is salience. Salience is the degree of readiness to express an opinion. Salient attitudes are often those in which people feel are important or of which they are knowledgeable.

In order to develop a more specific notion of attitude, many researchers have proposed that attitudes have three components: cognitive, affective, and behavioral. The cognitive component pertains to the idea or category used by individuals when thinking about a social object. For example, the category *group work* can be inferred by determining that students make similar responses to large groups, mixed-gender groups, same-ability groups, etc. The affective component deals with the emotions that are generated when an individual thinks about a social object. For example, if a student feels good when he/she thinks about working in groups, then the student has a positive affect towards small group work. The behavioral component deals with the predisposition to action. If a student has positive or negative attitudes towards group work, then these will affect the student's overt actions. However, researchers who believe

that attitudes have these three components, have been slow in creating procedures for assessing each of these three facets (Schibeci, 1984). Oskamp (1977) claims that viewing attitudes as having a cognitive, affective and behavioral component is neither necessary or useful. Oskamp (1977) suggests an alternative approach is to consider these three aspects as separate dimensions labelling them beliefs, attitudes, and behavioral intentions.

Schibeci (1984) claims that a useful definition of attitude proposed by Shaw and Wright guides the work of most attitude researchers. However, he goes on to say that this may not be a universal view shared by the social psychological community. Shaw and Wright state that "attitude is best viewed as a set of affective reactions towards the attitude object, derived from concepts or beliefs that the individual has concerning the object, and predisposing the individual to behave in a certain manner toward the object" (cited in Schibeci 1984, p.18). According to this view, a theoretical distinction can be made among beliefs, attitudes and values. Beliefs are cognitive in character and do not have an affective element. A belief is the acceptance of a particular object without emotional commitment involved (Schibeci, 1984). If an affective element is present, then an attitude exists. That is, if there is a belief that an object exists and that it is regarded as preferable or non-preferable, then the belief becomes an attitude. Values are seen as being more enduring than attitudes and underlie individual

lives (Schibeci, 1984). A distinction between attitudes and values is that values are more concerned with abstractions. For example, a student may have a favourable attitude towards a group of students, but also values cooperation. Attitude can also be distinguished from opinion because opinions are the verbalization of an attitude (Sax, 1980). However, some experts prefer not to make distinctions between the terms attitudes, beliefs and values because the distinctions are not entirely satisfactory nor is there universal agreement between the experts (Sax, 1980). Some researchers who have developed classroom environment scales avoid the problem by using the terms "student perceptions" rather than "student attitudes" (Fraser, Giddings, McRobbie, 1992; Ames & Archer, 1988).

In summarizing the definitions of attitude proposed by the experts, four common themes emerge: a) attitudes are based on a set of beliefs or experiences, b) there is a predisposition to act, c) there is an affective quality, and d) attitude varies along a continuum from favourable to unfavourable. For the purpose of this study, an attitude is simply defined as the manner in which one thinks, feels and behaves towards an object, an idea, a person or a way of doing things.

Definition of Small Group Work

The purpose of this study is to capture student attitudes toward the widest range of cooperative learning techniques, including those which vary

in both design quality and implementation quality. Therefore, a minimal restriction on the notion of working and learning with others was imposed. Thus, small group work is operationally defined as two to six students working together to learn new material, to review material, and to complete assignments and projects which are part of a course. Characteristics of small group work may include students discussing the material, asking each other questions, helping each other learn, striving to obtain a group goal, working on different aspects of the task, taking on different roles (e.g., reporter, recorder, encourager, etc.) and sharing resources (e.g., papers, calculators, etc.). Students are sometimes assigned a group grade based on their group work. However, not all group work encourages students to work interdependently and with individual accountability.

Goal Structures in the Classroom

Cooperation, competition, and individualistic learning are the three most commonly used classroom goal structures (Johnson & Johnson, 1989). A goal structure refers to the type of goal interdependence that exists between students as they strive to achieve a goal in the classroom. Under a cooperative goal structure, students can achieve their goal only if the other members of the group achieve their goals. Under a competitive goal structure, students can achieve their goal only if other students fail. Under an individualistic goal structure, students' achievement is unrelated to the

achievement of other students.

Most traditional instruction in Western societies relies on individualistic or competitive structures or a combination of both, reflecting the prevailing norms of the workplace in society at large. In most North American classrooms whole class presentation is the prevalent instructional strategy practised. In the whole class presentation format the teacher usually stands in front of the class and presents the material to the students who are seated in straight rows. The teacher asks questions and elicits responses in order to check student comprehension of the lesson. When several students have problems understanding the material the teacher demonstrates the problem on the board. The teacher is the main vehicle in which knowledge and material is transmitted to the students (Sharan, 1980). The students are expected to process and master the content on their own without the assistance of fellow classmates. Talking among students is discouraged. Students work on tasks on their own, and are evaluated individually. Astin (1988) states that under a meritocratic educational system individual achievement and accomplishments are rewarded. Individual merit is viewed as the contributing factor to successful academic outcomes and there is no inherent reason for students to cooperate with one another in order to succeed academically.

However, the whole class presentation strategy fosters competition implicitly or explicitly by having students compete for grades or prestige.

Students are frequently in competition with one another for grades and recognition, where one student's academic success decreases the chances for other students to attain success (Johnson & Johnson, 1989). James (1978) contends that the set up of the secondary school system promotes competition among fellow classmates. He claims that the elementary school system promotes cooperation and interaction between students, but that all changes when the students enter high school. In the secondary school system the educational milieu is drastically different. Students are exposed to more teachers and students and a more complex grading system. Consequently, since the high school systems have different grading procedures and different goals, competition eclipses cooperation.

Cooperative Group Work

Most teachers have used group work in one form or another in the classroom and many students have encountered group work in their academic lives. On the surface cooperative learning and traditional group work seem to be quite similar, however, there are many differences between them. In both cases, the students are seated in close proximity with the other group members, they interact with one another while working together on a task, and they are usually evaluated as a group. Cooperative learning is much more structured and thus increases the chances that all students in the group are active learners. It also increases the likelihood

that all the students are accountable for achieving the group goal, which is often not the case in regular group work. The essence of cooperative group work is working together, sharing ideas, participating equally, and ensuring that there is interdependence between students so that each member is responsible not only for their learning but also for the learning of each member of the group (Abrami, et al., 1993; Johnson & Johnson, 1989). Group assignment, individual accountability and positive interdependence, and method of evaluation are some of the key elements that distinguish cooperative group work from traditional group work.

Elements of Cooperative Groupwork

Group Assignment. Cooperative learning groups can be either student-initiated or teacher-initiated. Teacher-initiated groups are recommended over student-initiated groups because when students group themselves they tend to pick their friends or people who are similar to themselves, in terms of ability, gender, and ethnicity. One benefit of cooperative groupwork is that students experience the diverse skills and personalities of their group members. These benefits may not occur if students choose to work with their friends or students with whom they are comfortable. In addition, when students group themselves, there is always a possibility that one student may be left out because none of the students want him/her in their group.

Neighbour, random, homogeneous, and heterogeneous groups are common forms of teacher-initiated groups (Abrami, Chambers, Poulsen, Howden, d'Apollonia, De Simone, Kastelorizios, Wagner, & Glashan, 1993). Neighbour groups are informally formed by simply having students work with the student sitting next to them. Random groups are formed by numbering off the students and assembling them. For example, a class of twenty-four students would number themselves from 1 to 6. All the "1s" form a group, all the "'2s" get together etc. Besides numbers, shapes and concepts are used to creatively assign students to groups. One limitation of random assignment is that since the teacher does not control the groupings, some groups may be comprised of students who do not have the necessary skills to complete the task.

Homogeneous groups are often used in order to meet the special needs of the students. High ability students are placed together in order to complete more challenging work. While lower ability groups are given tasks that are up to their level of learning or that concentrate on a specific skill that the group members lack. One major disadvantage of homogeneous assignment is that some groups may consider themselves to be superior than the other "weaker" students in the class.

Heterogeneous groups are most frequently used in cooperative groupwork because research suggests that students learn more when there is a mixture of high, medium and low ability students in the group (Webb,

1988). Since the higher ability students usually have a stronger grasp of the material, they are able to pass on this knowledge to the other students. The low ability students are able to benefit from this experience because they have an "instructor" in the group who is able to explain the material. The rationale for assigning heterogeneous groups is twofold: a) students in the group will be less dependent on the teacher since there is at least one student in each group who can explain the material; and b) low performing students will get the assistance they need from the more able students in the group (Slavin, 1985). However, there have been criticisms of the assignment of students to heterogeneous groups. Cohen, Lotan, and Catanzarite (1989) have suggested that heterogeneous grouping gives rise to status differentiation within groups. These status differentials can lead to confirmation of both negative self-efficacy and negative status. "It has been repeatedly shown that mixed-status groups engaged in collective tasks are dominated by high status members and do not receive the benefit of the contributions by some low-status members" (Cohen, Lotan, & Catanzarite (1989). In addition, the presence of high status group members inhibits the participation of lower status group members.

Individual Accountability. Individual accountability is a key element that distinguishes cooperative learning from traditional group learning. In order for a group to be successful, (e.g., reaching the group goal) the participation of every member in the group is crucial. When individual

accountability is incorporated in the task it ensures that every person in the group is responsible for contributing to the process and the product. Therefore, the division of the task and the evaluation of the students is critical because it ensures that each member of the group is actively participating in the group functioning. Sharan (1990, p.31) states that individual accountability " is a sense of personal responsibility to the other group members for contributing one's efforts to accomplish the group's goals." Abrami et al. (1993) state that individual accountability enhances group work in numerous ways. First, each group member is made aware of what his/her responsibilities are to the group. Second, it indicates if a student needs assistance. Third, duplication of work and effort is eliminated since everyone knows what their function in the group is.

Positive Interdependence. Another critical element that distinguishes cooperative group work from traditional group work is positive interdependence. Positive interdependence refers to the manner in which students work together in order to obtain their group goal and exists when each individuals' outcomes are affected by the actions of others. According to Abrami et al. (1993), there are three ways that positive interdependence can be categorized: outcome, means, and social interdependence. Outcome interdependence refers to the way in which students are motivated to work together. Goals, rewards and outside force are three types of outcome interdependence. There is goal interdependence when all the members in

the group work toward a common goal. Group goals are important because they ensure that all the students in the group have a vested interest in the success of the group. If one group member achieves the goal then the rest of the group members will achieve their goals. A common goal is usually in the form of a group project or presentation. Outcome interdependence is also fostered via salient rewards (e.g., certificates, praise, grades), which are used to motivate the students to achieve their goal. However, in order for the group to receive the reward(s) each student in the group must contribute toward the group product. Finally, outside force interdependence unites group members in order to combat an external threat. Other groups are usually seen as the "threat", especially in classes where between-group competition is used.

Means interdependence is another way in which positive interdependence is fostered. Resource interdependence, task interdependence, and role interdependence are three types of means interdependence. Sharing resources in order to complete an academic task increases student involvement. Usually one work sheet is distributed per group, not per student, so the chance of students working individually is decreased.

Task interdependence can be fostered by dividing the task so that each student is responsible for completing a section of the assignment. Students either work on a part of the assignment and teach it to their group

members or they add the section they worked on individually to the group project.

Assignment of roles is another way in which means interdependence is fostered. Johnson and Johnson (1989) recommend that students be assigned roles in order to acquire the necessary cognitive and social skills that are required in effective group functioning such as organizer, encourager, reporter, summarizer etc. The role that each student is assigned is vital to the completion of the group task. The student roles change from day to day or week to week in order for all the students to play a role which perhaps does not come naturally to them. For instance, a student who is usually shy and introverted will have the opportunity to assume a leadership role which requires directing the rest of the team members.

The final type of positive interdependence is social interdependence. Social interdependence deviates from outcome and means interdependence because it utilizes non-academic tasks to create a bond between the group members. Non-academic tasks, usually referred to as team building activities, are used to promote trust and communication among members. Students are usually more productive on academic tasks once group cohesion and group identity has been established from these social activities.

Evaluation. The evaluation of group work can be conducted in several

ways. A group grade can be assigned by taking the average of the individual test scores or by randomly selecting the test result of one student in the group. Students may also be graded individually. Although the students learn the material in groups, they complete individual tests. The instructor determines what percentage of the individual mark will be made up from the group mark. Slavin, Sharan, Kagan, Hertz-Lazarowitz, & Shmuck (1985) state that it is important for students working in cooperative groups to perceive the grades and rewards as being fair so that they do not withdraw from the group functioning. Students who perceive the grading system as being unfair may put little effort in the group work and the relationships with the other students in the group.

Cooperative Learning Methods

A myriad of cooperative learning methods have been developed that stress various philosophies. Some cooperative learning strategies are based on the humanistic perspective, which emphasizes student affect and self-esteem. Proponents of the humanistic approach feel that the overall personal development of the student is equal to or more important than academic achievement. Other cooperative learning methods are influenced by behavioral theories. The behavioral perspective makes the assumption that students lack the intrinsic motivation to learn, therefore extrinsic rewards must be given in order to increase student learning and motivation.

According to behaviourists, behaviours that are rewarded are strengthened, whereas behaviours that are not rewarded or are punished will be eliminated. Finally, most cooperative learning methods are grounded in the developmental theory which postulates that interaction with fellow classmates leads to increased social and cognitive development. Regardless, if academic achievement, student feelings or overall development are the main objective, all the cooperative learning methods share one premise: namely, students profit by working with their peers (Abrami et al., 1993).

Numerous cooperative learning methods have been developed, however, the most commonly used ones are: Student Teams-Achievement Divisions (STAD), Teams-Games-Tournaments (TGT), Jigsaw, Team-Accelerated Individualization (TAI), Co-op Co-op, Group Investigation, and Learning Together. Some cooperative learning methods such as STAD and TGT employ group rewards, recognition or grades in order to reward a group. STAD utilizes improvement points from individual quizzes to increase student motivation to learn in groups, whereas TGT uses points that are generated from competitive tournaments. Learning Together emphasizes psychosocial development by means of group interaction.

In the Student Teams-Achievement Divisions (STAD) (Slavin, 1987) method students are assigned to four or five-member heterogeneous (e.g., ability, gender, and ethnicity) teams. These groupings are based on ability rankings from previous test scores. After the instructor has presented the

lesson and the learning objectives of the task, the students work on worksheets with their group members. Each week students are quizzed individually on the content that they learned with their group members. The amount by which each student exceeds his or her past score average is the contribution each student makes to the team score. Improvement points enable each student to contribute equally to the group score regardless of their ability. Groups which have the most improvement points receive awards or praise.

Teams-Games-Tournaments (TGT) (Devries, Slavin, Fennessey, Edwards, & Lombardo, 1980) is similarly structured to STAD, with the main difference being that students generate improvement points via weekly tournaments. The steps in TGT are as follows: 1) students are assigned to heterogeneous groups; 2) the teacher teaches the material; 3) the students study the material with their group members; 4) students participate in tournaments; and 5) groups are rewarded via awards and newsletters. When students engage in the tournaments, they compete with two students from other teams who are of equal ability. The tournament consists of questions that are based on the material that students learned with their original groups. The student who answers the most questions correctly wins six points for the team; the next highest scorer receives four points; and the lowest scorer receives two points. The teams that receive the most points receive praise and recognition. After each tournament the

winner is "bumped up" to a higher tournament table which consists of higher ability students, and the loser is "bumped down". The middle scoring student remains at the same level. This ensures that each student, regardless of ability, has an equal chance to contribute points to the team.

The Jigsaw method (Aronson, 1978) divides the task into sections and requires students to become experts in the area, by discussing it with students from other groups who are working on the same task, and then by teaching it to the their original group members. Individual accountability, task and resource interdependence are fostered in this technique because the task and materials are divided equally, and each member must complete his/her own section in order for the group project to be completed. Students are evaluated individually and there is no group reward.

Team-Accelerated Individualization (Slavin, 1990) is a cooperative learning method that incorporates individual learning in order to reach students of differing abilities, especially in math classes. As in the STAD method, students are placed in four or five-member heterogeneous groups. In addition, teaching groups which consist of students who have similar ability are formed. The teacher introduces a specific concept to the teaching groups while the rest of the class works on their individual worksheets, which are corrected by team members. When students successfully complete a series of questions on a worksheet, they are allowed to go on to the next sheet. Once all the worksheets are completed students take a formative

test which is marked by a fellow group member (e.g., monitor). Once a student has passed the formative test, he/she seeks a monitor from another group in order to get and write a final test. Each week the teacher adds together the number of units covered by each team member plus the final test scores. Teams who meet established criteria are rewarded with certificates.

The Co-op Co-op technique (Kagan, 1985) differs slightly from the other methods because it gives students control over the learning goals and the evaluation of these goals. During whole class presentation students brainstorm a topic in order to discover subtopics which they would like to investigate in groups. Students are either assigned to heterogeneous groups or are self-selected based on similar interest in topic. Team-building activities are implemented in order to foster a bond amongst the group members and to promote communication skills. Each group member selects one of the sub-topics, researches it and presents the information to the group. Once students have had the opportunity to teach their topics to their fellow members, the whole group gives a presentation comprised of the mini-topics to the whole class. Each member has to have a deep understanding of each mini-topic in order to effectively present the material. Evaluation is done by combining: a) the student evaluations of their team-mates effort; b) the class evaluations of the group presentation; and c) the teacher evaluation of the papers that each student submits on his/her mini-

topic. Grades may or may not be assigned based on these evaluations.

Group Investigation (Sharan, 1980) emphasizes active higher-level learning through interaction with group members. Social skills and cognitive skills are learned by giving students the opportunity to work on multifaceted tasks and the autonomy to coordinate and evaluate their learning with their peers. Students are given enormous freedom in selecting their group members and topic area, and conducting and presenting their research. Students are encouraged to seek each others help as they work on their mini-topics. Each group makes a group presentation that demonstrates how the knowledge that was acquired can be applied. Evaluation covers both the team presentation and each individual's contribution to the team.

Johnson and Johnson (1975) developed the technique Learning Together which emphasizes positive group interactions and interpersonal skills more than academic learning. Prosocial behaviours are modelled and rewarded by the teacher and students are given the time to reflect on how their team functioned. Students work in four to five member teams in order to complete a group task. Role interdependence is fostered by assigning essential roles to students which are necessary to the task or that enforce cooperative skills (e.g., reporter, recorder, encourager). Student evaluation is based on two criteria; how well the group members cooperated and how well they performed on the task.

Effects of Cooperative Learning

Cooperative learning and Learning Outcomes. An extensive body of research indicates that a cooperative goal structure in the classroom, rather than a competitive or individualistic one, increases student learning. Johnson, Maruyama, Johnson, Nelson, & Skon (1981) conducted a meta-analysis of 122 studies that investigated the effects of cooperative, competitive and individualistic structures. The results of the meta-analysis showed: a) cooperation promotes higher achievement than does interpersonal competition, regardless of subject area and age group; b) cooperation is superior to individualistic work in promoting achievement and productivity; c) cooperation without intergroup competition promotes higher achievement and productivity; and d) there is no significant difference between competitive and individualistic goal structures on achievement and productivity.

Slavin also conducted a meta-analysis of 46 studies in elementary and secondary schools that examined the effects of cooperative learning on student learning. His investigation of the research determined that 29 of these studies found a favourable effect on student achievement and no differences in 15 studies. These findings led Slavin to conclude that for cooperative learning to have positive effects, individual rewards are necessary (Slavin, Sharan, Kagan, Hertz-Lazarowitz, & Shmuck, 1985). According to Slavin the learning of each and every group member must be

critical to group success and for the group success to be rewarded in order for achievement to be higher than it is in traditional classrooms (Slavin, et al., 1985).

The Effects of Small Group Work on Student Attitudes. Previous research has consistently shown that cooperative learning experiences have positive effects on student attitudes (Johnson & Johnson, 1989; 1983). Since students interact and communicate when they work together in the classroom, their attitudes toward learning and school are influenced (Sharan, 1990). Many studies confirm that cooperative learning groups promote more positive attitudes toward subject areas and instructional experiences and more supportive and caring relationships with peers and teacher (Gunderson & Johnson, 1980; Johnson & Johnson, 1989).

Research on student attitudes towards cooperative learning show that cooperative learning experiences promote more perceived levels of peer support and encouragement for learning (Johnson & Johnson, 1983), and more positive attitudes toward the instructor and each other (Johnson, Bjorkland & Krotee, 1984). Cohen (1984) suggests that cooperative reward structures enhance positive interpersonal relations. The positive attitudes toward each other include mutual liking, mutual concern, friendliness, attentiveness, feeling of obligation to other students and desire to win the respect of other students (Cohen, 1984).

Evidence suggests that cooperative learning experiences, compared

with competitive and individualistic ones, result in greater liking of peers (Johnson & Johnson 1989; 1978). Students also perceive themselves as being liked by other students, and other students care about one's learning. Individualistic attitudes are related with not wanting to help other students learn, and not wanting to do school work with other students. Increased cooperation in the classroom promotes more positive cross-ethnic and cross-sex relationships (Warring, Johnson, Maruyama and Johnson, 1985).

Students who work together like school more and like their fellow classmates more. In addition, students who work cooperatively are more likely to be altruistic, to be able to cooperate effectively, to believe that cooperation is beneficial, and want their classmates to do well (Slavin, Kagan, Hertz-Lazarowitz, & Shmuck, 1985).

Negative Effects of Group Work

As effective as cooperative group work may be, there are times when group work is an unproductive and unpleasant experience. Salomon and Globerson (1989) claim that on many occasions cooperative group work does not work as well as expected nor are students more active learners when they work cooperatively. Salomon and Globerson (1989, p.90) state that "rather than pool their mental efforts, teams or particular team members, often show reduced expenditure of mental effort, loafing behaviour, even effort-avoidance, in ways that debilitate learning". Often times working in

small groups gives rise to negative effects such as the "free rider", the "sucker", the "status differential", and the "ganging up" effects (Salomon and Globerson, 1989). The "free rider" effect occurs when one student in the group does a minimal amount of work and expects the other more capable group members to do the work which is needed to complete the task. When the more capable students in the group feel that they are doing more than their share of the work they begin to feel resentful and thus the "sucker" effect emerges. Consequently, the harder working student who perceives that he or she is being taken advantage of by the other group members may decrease involvement in the group. This usually occurs when the group members are working on a disjunctive task where the group's performance depends on the performance of the most able member. In addition, the more able member feels resentful if he or she feels that the other members are capable to do the work but are not putting in the effort or if the other members do not have the ability to do the work. Some groups do not reach their learning potential because of the status differentials operating in the group. Students who are perceived as having high ability are also seen as having high status in the group. The high status student in the group gives and receives more help and information, thus this student gains more social influence over the group. Students who have low status in the group have less influence over the group process (Salomon and Globerson, 1989).

Logan (1986) conducted an ethnographic study of cooperative learning

on fourth and fifth grade elementary students learning science and math. Logan's findings revealed various reasons why some students do not reap the benefits of cooperative group work. In this study, both classes received three to five information sessions on the benefits of cooperation and how to work together. The teachers assigned the students to five member heterogeneous ability groups. Students worked in groups an hour a day three to four times a week for several weeks. All the groups were required to make presentations that were judged on how well each group member participated and understood the material.

Logan (1986) states that one thing that became evident was that students had problems working together because of personality clashes. Students bickered over who should be doing what and who should make the decisions. When the students were informally interviewed and asked about the sources of friction, some major themes emerged from their explanations. First, almost all the students, whether they were academically strong or weak, claimed that there were hierarchies within the group. Simply, some students were considered to be "smart" while others were perceived as being "slow". Smart students were ones who had high ability in reading and writing and were strong public speakers. Slow students were those who lacked these skills.

Logan states that group members have a clear idea of what abilities are necessary to accomplish a group project and are well aware of which

students in the class possess these abilities. He states that this perception was related to most of the conflict in the group. Group members who were strong in reading, writing and speaking dominated the group activity, while members who were weak in these areas remained passive in the group. Strong students did not want their performance to suffer, therefore, they only made half-hearted attempts to involve the weak members in the group. Logan concludes that regardless of the teachers' urgings to participate and help one another, students did not heed the instructions. Students felt that they could either do good work or they could spend their time helping the others, they could not do both. Logan (1986) concludes that the students' attitudes jeopardized the effectiveness of the cooperative learning experience.

Instruments used in Research

Previous studies that have investigated student attitudes towards small group work have examined the learning climate or environment that exists in the classroom while students work together to obtain a group goal (Fraser, Anderson, Walberg, 1982; Johnson, Johnson & Anderson, 1983; Zahn, Kagan, Widaman, 1986). Zahn, Kagan, Widaman, (1986, p.1) define classroom climate "as a set of generalized attitudes, affective responses, and perceptions related to classroom processes among students." Fraser, Anderson & Walberg (1982, p.2) define a learning environment as a "profile

of class group properties that include interpersonal relationships among pupils, relationships between pupils and their teacher, relationships between pupils and both the subject studied and the method of learning, and, pupils' perceptions of the structural characteristics of the class."

Literature searches were conducted on Eric (1966-1991) and on PsycLit (1974-1991) in order to locate existing inventories that examined student attitudes toward small group work. Search descriptors used were: attitudes and small groups, classroom climate, classroom atmosphere, classroom environment, social environment, social climate, and group climate. The following questionnaires were located, reviewed and subsequently used in this study: Minnesota School Attitude Survey (Ahlgren, 1983); Classroom Life Instrument (Johnson, Johnson & Anderson, 1983); Untitled questionnaire (Gunderson & Johnson, 1980); Learning Environment Inventory (Fraser, Anderson, & Walberg, 1982); Class Environment Checklist (Lazarowitz, Baird, Hertz-Lazarowitz & Jenkins, 1985); College and University Classroom Environment Inventory (Fraser, Treagust & Dennis, 1986); Classroom Environment Scale (Moos & Trickett, 1987); Classroom Attitudes Scale (Zahn, Kagan & Widaman, 1986); Goal Orientation (Ames & Archer, 1988); Science Activity Questionnaire (Meece, Blumenfeld and Hoyle, 1988); Group Climate Questionnaire (Hurley & Brooks, 1988); and Gross Cohesiveness Scale (Johnson & Fortman, 1988). The items from these instruments are listed in Appendix 1.

The purpose and phases of development, reliability, and validity of the instruments are summarized below. The reliability of the instrument deals with the issue of accuracy and generalizability, while the validity of the instrument is concerned with the extent to which it measures what it purports to measure (Sax, 1980). Test-retest reliability determines the stability of the responses stable over time. Criterion related validity is concerned with an empirical association with some criterion or "gold standard" (Devellis, 1991). Predictive validity is defined as "the correlation between test scores and performance on a criterion where there is a time lapse between the two" (Sax, 1980, p. 635). However, not all the instruments provided this information.

Minnesota School Attitude Survey. The Minnesota School Attitude Survey (MSAS) was developed to examine the affective impact of educational programs on students. The information was then used to make decisions that would lead to improved programs. Items from part two of the MSAS assesses students' feelings of support, pressure, motivation, acceptance and exclusion, cooperation and competition, and self-worth within the school setting (Ahlgren, 1983). The forty items from this scale are combined into eleven clusters and are summarized into three clusters. They are: Support (Academic Support, Personal Support, Acceptance, Fairness); Pressure (Academic Pressure, Competition, External Motivation); and Personal Development (Personal Worth as a Student, Need for

Structure, Cooperation, Internal Motivation).

Three studies of test-retest reliability were conducted on the MSAS: two weeks later, two months later and six months later. Individual data revealed moderate correlations of item responses between tests and retests, between 0.4 and 0.5 (Kendall's *tau).* However, the reliability for groups was high, that is, item correlations were between 0.8 and 0.9. Furthermore, not only were the item correlations for grade-level averages high, they were also quite stable between the assessments.

Two studies of internal consistency were conducted (N=240 and N=6000). The values of alpha for the clusters were all above 0.6, moderate but acceptable according to the authors. The rationale being that the MSAS is not intended to produce individual scores, and reliabilities for groups would be considerably higher.

Three types of validity studies were conducted from the early development of the instrument. First, the validity of the responses were examined by follow-up interviews. Second, the validity of the constructs were explored by having students: a) sort items into categories they wanted and then name the categories; b) sort items into given categories; and c) make up category names for sets of items. Third, relevance of the items were examined by having teachers suggest, edit and delete items. Based on the results of the validation tasks, the original items were either: deleted, retained, reworded, reduced in number or added to (Ahlgren, 1983).

Classroom Life Instrument. The Classroom Life Instrument consists of 90 Likert-type questions (short form contains 59 items) with a five-point completely true to completely false response scale. The instrument contains 12 factors that have been determined from theory and from previous factor analyses. These are: 1) cooperative learning, 2) positive goal interdependence, 3) resource interdependence, 4) teacher academic support, 5) teacher personal support, 6) student academic support, 7) student personal support, 8) class cohesion, 9) fairness of grading, 10) achieving for social approval, 11) academic self-esteem and 12) alienation.

Johnson, Johnson and Anderson's (1983) study used the Classroom Life Instrument (a modified version of the Minnesota School Attitude Survey) on 859 students in grades 5 through 9. They were interested in determining: a) if length of cooperative learning procedures influences relationships among peers and between teachers and students; and b) if cooperative learning classrooms have different climates from non-cooperative learning classrooms (i.e., cooperative learning procedures seldom used). They found that positive attitudes toward cooperative learning were positively related to perceptions of support, help and friendship from teachers and peers. Johnson et al., (1983) conclude that cooperative attitudes and experiences were related to feeling academically and socially supported and accepted by teachers and peers. In addition, students who reported high levels of positive goal interdependence and resource

interdependence feel that their fellow classmates receive the grades that they deserve, and thus feel that the grading system is fair. They postulate that these results should alleviate teacher concerns that students may be apprehensive about being graded on group efforts.

Untitled Scale. Gunderson and Johnson (1980) conducted a study that had three purposes. The first purpose was to examine how cooperative learning experiences affect students attitudes toward French. The second purpose was to examine how cooperative learning experiences affect relationships with peers and teachers. The final purpose was to examine the perceived impact of the cooperative learning experiences on student motivation to learn French, the personal benefits students received from the group experiences, and their attitudes toward learning in groups. The results of their study showed that cooperative learning experiences promoted positive student attitudes among students toward all of these aspects of learning French. According to Gunderson and Johnson (1980), all the students (N=60) enjoyed learning French in groups and that 98% of the students wanted to take French again next year. Some other findings of the study were: 82% of the students indicated that they would rather learn French in a group; 96% indicated that students should work together to help each other learn; 90% felt that they were learning when they helped other students learn; and 88% believed that they were an important member of their group.

Their findings were based on an untitled scale that consisted of nineteen items measuring student attitudes in the following areas: valuing cooperation, valuing french, personal benefit, motivation, peer support (helping), peer support (caring), and teacher support. The response scale used was: A Lot, Sometimes, Not Very Often, Never and No Response. No information was provided as to how the scale was developed, nor is there any information provided as to how reliable or valid the scale is. However, the fact that the second author of this study was David Johnson (who has extensively used the Minnesota School Attitude Survey (MSAS) and the Classroom Life Instrument) and the fact that some of the items are similar to the items found in these instruments, suggest that the untitled questionnaire used in this study was probably based on these instruments. However, Gunderson and Johnson do not mention the MSAS or the Classroom Life Instrument in their report.

Learning Environment Inventory (LEI). Fraser, Anderson and Walberg (1982) developed the Learning Environment Inventory which probed various aspects of the classroom social climate. The reasons for developing this instrument were threefold: a) classroom observations were expensive and time consuming, therefore a paper-and-pencil measure of classroom interactions was needed; b) classroom observations include low inference variables that have little bearing to student learning; and c) students are the best judges of their own learning environment (Fraser,

Anderson & Walberg, 1982). The purpose of the LEI was to predict students' cognitive, affective, and behavioral learning outcomes from their perceptions of classroom learning environment.

The LEI is a 105-item paper-pencil test which consists of fifteen scales: cohesiveness; diversity; formality; speed; material environment; friction; goal direction; favouritism; difficulty; apathy; democracy; cliqueness; satisfaction; disorganization; and competitiveness.

Reliabilities conducted were alpha coefficients for individual students (e.g., the extent to which a student answers similarly for each item on the scale) and intra class correlations (e.g., indicates the reliability of class means). The reliability estimates were based on data collected on two separate studies conducted in 1967 (N=464) and 1969 (N=1048). The alpha coefficients for individuals ranged in 1967 study from .58 (scale: diversity) to .86 (scale: goal direction), and ranged from .54 (scale: diversity) to .85 (scale: goal direction) in the 1969 study. The intraclass correlations for groups ranged in the 1967 study from .43 (scale: diversity) to .84 (scale: difficulty), and from .31 (scale: diversity) to .92 (scales: formality and disorganization). In addition, preliminary test-retest estimates from a 1970 study (N=139) ranged from .43 (scale: diversity) to .73 (scale: friction). Based on the results from the alpha coefficients, the intraclass correlations and the test-retest reliabilities performed, Fraser et al. (1986) conclude that all the LEI scales posses satisfactory reliability.

Many studies have been conducted between 1968 and 1981 in numerous countries investigating the predictive validity of the LEI. The results shown that there is strong support "for the incremental predictive validity of students' classroom perceptions in accounting for appreciable amounts of learning outcome variance, often beyond that attributable to student entry characteristics such as pretest or IQ (Fraser et al., 1982. p.13). That is, student classroom perceptions influence student learning. Fraser et al. also state that the LEI has practical applications. They claim that the LEI provides teachers with convenient, reliable feedback about the classroom climate from the students' perspective.

Class Environment Checklist. Lazarowitz, Baird, Hertz-Lazarowitz and Jenkins (1985) conducted three studies in high-school science classrooms which used a modified version of the Jigsaw method. In the first two studies the classroom social climate was measured and regarded as a dependent variable. The classroom social climate was measured via an instrument labelled the Class Environment Checklist. This questionnaire was based on the Learning Environment Inventory (LEI) that was initially developed by Walberg in 1974 and further adapted by Hertz-Lazarowitz, Sapir, and Sharan in 1981. The Class Environment Checklist is a 42-item questionnaire that consists of five subscales: involvement in class, cohesiveness, cooperation and equality, competition, and attitude toward the subject matter. Reasons for adapting the questionnaire and reliability and

validity on the new scale are not reported.

The results of their first study concluded that students in the Modified Jigsaw class, in contrast to the control class, made significant gains on the measures "Involvement in learning", " Cooperation" and "Attitude toward subject". There were no differences between the scores of the experimental and control students on the other scales, nor were there differences on any subscales in the second experiment.

College and University Classroom Environment Inventory. Fraser, Treagust and Dennis (1986) developed the College and University Classroom Environment Inventory (CUCEI). This instrument was developed to assess the classroom psychosocial environment at universities and colleges. This instrument was a modified version of the Learning Environment Instrument (LEI) which was used in high school classes. Four main criteria guided the development of this instrument. First, the new instrument was to be consistent with secondary school instruments. Dimensions were obtained by looking at the existing instruments. Second, the new instrument was to cover the general categories that were identified by Moos in the Classroom Environment Scale (CES)-- relationship dimensions, personal development dimensions, and system maintenance and system change dimensions. Dimensions for the CUCEI were chosen to include at least one scale in each of the three general categories of the CES. Third, saliency to teachers and students was incorporated. Teachers and

students were interviewed and asked to comment on draft sets of items in order to insure that the dimensions and items were considered salient. Finally, economy guided the development of the instrument. Economy in answering and processing the items was achieved by having a small number of reliable scales and items.

The CUCEI contains seven scales: Personalization, Involvement, Student Cohesiveness, Satisfaction, Task Orientation, Innovation, and Individualisation. Scales selected from secondary level instruments were redefined and modified and new items were written and existing ones were reworded. Revisions were made based on the reactions of individuals who had expertise in questionnaire construction and had taught at the post-secondary level. The final version of the CUCEI contained 49 items with an equal number belonging to each of the seven scales. Each item is responded on a four-point scale ranging from *strongly agree* to *strongly disagree*. Fraser, Treagust and Dennis (1986) conclude that each scale has acceptable internal consistency ranging from 0.72 to 0.92. In addition the discriminant validity of the scale was examined. The authors conclude that the CUCEI measures distinct yet overlapping aspects of classroom environment. However, the conceptual distinctions among scales are important enough to retain the seven dimensions within the scale.

Classroom Environment Scale. The Classroom Environment Scale (CES) (Moos & Trickett, 1987) is a ninety-item scale which measures

students' and teacher perceptions of their current classrooms. The CES is composed of nine subscales which can be summarized into three dimensions: Relationship (involvement, affiliation, teacher support); Personal Growth or Goal Orientation (task orientation, competition); and System Maintenance and Change (order and organization, rule clarity, teacher control, innovation). The CES taps dimensions that reflect the responsibility of the teacher to provide an environment in which students can learn in and provides support for the students (Moos & Trickett, 1987). In addition, the CES assesses student-student relationships.

Several methods were used to obtain an initial pool of questionnaire items. Items were constructed from observations conducted in many classrooms and from informal interviews conducted with students, teachers and administrators. The 90-item form was derived from analyses performed on three earlier versions. The initial form had 242 items covering 13 dimensions. Subsequent forms were developed by dropping items that: a) were not highly related to the other items in their subscales; b) were correlated highly with other subscales; and c) did not differentiate significantly among classrooms. In addition, subscales that were interrelated were collapsed and additional items were added to tap areas missing in the first form. Criteria used to select items and subscales for the final form were: a) items that were highly related to their subscale; b) differentiated among classrooms; and c) were not characteristic of extreme

classrooms (Moos & Trickett, 1987).

Internal consistencies were calculated via Kuder-Richardson Formula-20 (formula used for True or False responses). The subscale internal consistencies ranged from 0.67 for Competition to 0.86 for Teacher Control. Moos and Trickett (1987) conclude that the average item to subscale correlations were quite high ranging from 0.48 to 0.57. In addition, the subscales measured distinct but related aspects of classroom environment. Test retest reliability of individual scores on the nine subscales were calculated. Fifty-two students in four classrooms took the CES twice over a six-week period. The test-retest reliabilities ranged from 0.72 for Rule Clarity to 0.90 for Innovation.

Content validity was incorporated into the scale by: a) providing definition to constructs; b) preparing items that fit the definitions of the constructs; and c) selecting items that were conceptually related to a dimension as was viewed by independent raters. In addition, items were chosen on the basis of item intercorrelations, item-subscale correlations, and internal consistency analyses.

Construct validity is the relationship between the perceived learning environment and other ways of assessing classroom settings. The construct validity of the scale was examined by conducting observations and interviews with teachers in 39 classes from two schools. Over a one month period, teachers were asked about the amount of free class time, how often

classes discussed student-suggested topics, students worked on special projects and students worked in small groups. Students who worked in small groups considered their classes as high in affiliation. Students in classes high in innovation and low in task orientation and organization had more free time and were more likely to initiate discussions and engage in special projects.

The CES was developed in 1970 and has since been used in research studies. The results of a study conducted by Moos and Moos in 1978 was reported by Chávez Chávez (1984) who reviewed high-inference measures developed in the last 30 years. Moos and Moos found significant relationships between student and teacher perception of classroom environment and mean class grades. For student perceptions, involvement, affiliation and teacher support had significant correlations with mean grades. Rule clarity and teacher support had a significant negative correlation with mean grades. For teacher perceptions, involvement had a significant positive correlation and teacher control had a significant negative correlation with mean grades. It was therefore concluded that students and teachers perceived classrooms with high average grades to be higher in involvement and lower in teacher control (Chávez Chávez, 1984).

Classroom Attitudes Scale. The Classroom Attitudes Scale (Zahn, Kagan & Widaman, 1986) was used to determine if classroom structure biases classroom climate in favor or against different ethnic groups. In

addition, the impact of STAD and TGT on classroom climate among students was compared to traditional whole-class format. The authors postulate that classroom climate is an important dimension in understanding how the cooperative process works. Zahn, Kagan & Widaman (1986) felt that previous classroom climate studies employed a limited range of grade levels, few minority students, and unvalidated and/or questionable climate measures. The instrument they used in their study was designed to improve on previous work. A thirty-two item questionnaire was developed that contained factors that were determined from theory and from previous factor analyses. The questionnaire was partly based on an instrument used by Slavin in the late seventies. Many new items were added and existing ones were reworded to suit the age levels and subject area of the study. The two main factors of the instrument were: Social relations (feeling liked and supported, liking and supporting others, liking for group work, mutual concern for absence) and Schoolwork (liking for school, liking for class, liking of spelling). Internal consistency reliabilities, measured via Chronbach's alpha, were 0.74 for Social Relations and 0.77 for Schoolwork.

Goal Orientation. Ames and Archer (1988) investigated how specific motivational processes are related to mastery and performance goals in actual classroom settings. The results of their study showed that mastery and performance goals were useful in differentiating students perceptions of

the classroom learning environment. Their findings suggest that a mastery goal orientation may encourage students to think in a way that will increase their involvement in learning. As well as increase the chance that students will engage in tasks that will help their learning. When students perceived the class as emphasizing a mastery goal, students reported that they preferred tasks that offered challenge, liked their class more and believed that effort and success were related. Ames and Archer (1988) state that most of the research on classroom climate has focused on student achievement as the outcome measure and that their work brings to light the relationship between student perceptions of classroom climate and motivation.

An instrument was developed to assess students' goal orientation. No information is provided on how the item pool was derived. Factor analyses performed on the set of items revealed that the scale had two factors, namely, Mastery Goal and Performance Goal. Coefficient alphas for each scale were 0.88 for the Mastery Scale and 0.77 for the Performance Scale. The correlation between the scales was -0.03. The Goal Orientation Questionnaire consists of thirty-four items that are rated each on a 5-point Likert scale ranging from *strongly disagree* (1) to *strongly agree* (5). Six examples of the 19 items constituting the Mastery scale were provided in the Ames and Archer (1988) article, as were five examples from the 15 item mastery scale. Therefore, only eleven items from this instrument were

subsequently examined in this study.

Science Activity Questionnaire. Meece, Blumenfeld and Hoyle (1988) examined the goal orientations and the use of high-level or effort-minimizing learning strategies of fifth and sixth grade students (N=275). Results of the study showed that students who emphasized task-mastery goals reported more active cognitive engagement in learning activities. Ego/Social skills were also positively related to task engagement. Both types of goal orientation are a form of approach motivation, however, correlational findings revealed that students who were concerned about their ability increased the use of effort-minimizing strategies (Meece, Blumenfeld & Hoyle, 1988). Students reduced their effort by frequently seeking help, copied answers and guessed at solutions. These were seen as devices for protecting feelings of self-worth and for avoiding negative implications of low ability. In other words, students preferred to think that poor performance was based on lack of effort rather than lack of ability.

The instrument used in this study was Science Activity Questionnaire (SAQ). This fifteen item questionnaire had three factors: Task Mastery (nine items; coefficient alpha = 0.94); Ego/Social (three items; coefficient alpha = 0.85); and Work-Avoidant (three items; coefficient alpha = 0.77). Each of the items was rated on a 4-point Likert scale (4= very true, 1= not at all true). Questionnaire items were adapted from previous work conducted by Carole Ames in 1984 and from pilot work by the authors.

Group Climate Questionnaire. Studies that have examined the emotional climate of small groups have examined the concept of affiliativeness (Hurley, 1989). Affiliativeness is considered by personality behaviourists as being an important construct of interpersonal behaviour. MacKenzie's (1981) Group Climate Scale (GCQ) has often been used to look at this aspect. The factors used in this scale are: Cared; Participated; Reasoned; Confronted; Revealed; Normative; Anxious; Angry; Avoided; Depended; Withdrawn; and Rejected. Twelve items from this scale were subsequently rated in this study.

Gross Cohesiveness Scale. Student perceptions of cohesiveness between group members has also been of interest to researchers. Cohesiveness is concerned with morale, efficiency, group spirit and attractiveness of a group for its members (Johnson & Fortman, 1988). An instrument widely used for measuring group cohesiveness has been the Gross Cohesiveness Scale (GCS) developed in 1957. Johnson and Fortman (1988) investigated the internal structure of the GCS. In order to do so, Pearson product-moment correlations among all items were calculated and then factor analyzed. In addition, complete-link cluster analysis was performed on the inter-item correlations. The eight items of the Gross Cohesiveness Scale assess two factors: 1) the affective aspects of cohesiveness; and 2) the cognitive aspects of cohesion. In addition, cohesiveness is usually seen to be composed of two elements: 1) social

cohesion; and 2) task cohesion. Johnson and Fortman state that based on the content of the Gross Cohesiveness Scale the scale assesses social cohesion. They then suggest that social cohesion be subdivided into affective and cognitive components.

Summary

The instruments used in previous research varied in terms of the purpose and procedures used for development, as well as reliability and validity. For example, instruments such as the Minnesota School Attitude Survey (MSAS), Learning Environment Instrument (LEI), and the Classroom Environment Scale (CES) report how they were developed and how reliable and valid they are. While other instruments, such as the Untitled Questionnaire and the Class Environment Checklist provide very little information of this nature. A question to be addressed in this study is: How relevant are these instruments for small group research? Which items from these questionnaires capture the real experience of learning in small groups?

Critique of Instruments

As useful as the existing inventories have been in providing information pertaining to student attitudes, they have two major limitations which can be categorized as content and technical. Under the content

domain, the main hypothesized flaw is that the existing instruments do not capture aspects that are relevant to learning in small groups. Many concerns or reactions that students have about small group learning are not assessed in these questionnaires. It is indisputable that factors derived from theory are of monumental significance: however, the overall picture of the cooperative classroom is incomplete if student concerns and comments are not addressed in these inventories. Combining scale items that have been used in previous classroom climate questionnaires with student comments from actual classrooms will yield an instrument that will test the reliability and the relevance of the previously measured factors and in addition examine new dimensions that have not been addressed.

Under the technical domain, many of the instruments fell prey to a host of flaws which are detrimental to questionnaire development. Some major flaws were: a) two ideas combined into one statement; b) items that were too long and wordy; c) items that were ambiguous or too general; d) items that were irrelevant to the object being studied; e) attitudinal and factual statements intermixed; f) inappropriate wording; and g) the same item used to measure two different factors.

When looking closely at the items from the existing scales, several flaws were noted. First, some items contained two ideas in a single statement. For example, "The class is well organized and efficient" (LEI); "I like to share my ideas and materials with other students" (Classroom Life

Instruments); "In a biology period, most of the students cooperate and do not compete with one another" (Class Environment Checklist); "The teacher sticks to classwork and doesn't get sidetracked" (Classroom Environment Scale). Respondents may have difficulty answering these items because they may agree with the first part of the statement but not necessarily with the second part or vice versa. Experts in questionnaire development (Devellis, 1991; Keeves, 1988) state that double-barrelled items (i.e., items that convey two or more ideas) should be avoided.

Second, items that are exceptionally lengthy should be avoided because length increases complexity and decreases clarity (Devellis, 1991) Many items from the existing scales were difficult to understand because of the length of the statement. For example, "There is an undercurrent of feeling among students that tends to pull the class apart" (LEI); "Some groups of students work together regardless of what the rest of the class is doing" (LEI); "There is not enough interaction among students for sympathy or nonsympathy relations to develop" (Class Environment Checklist); "If most members of your group decided to dissolve the group by leaving, would you try to dissuade them?" (Gross Cohesiveness Scale); "In the first few weeks the teacher explained the rules about what students could and could not do in this class" (Classroom Environment Scale); "Students can get in trouble with the teacher for talking when they are not supposed to" (Classroom Environment Scale).

Third, several items were difficult to understand because the idea conveyed was vague or ambiguous. For example, "Different students vary a great deal regarding which aspects of the class they are interested in" (LEI); "Personal dissatisfaction with the class is too small to be a problem" (LEI); "Students do not care about the friendship situation in the classroom" (Class Environment Checklist).

Fourth, statements that are irrelevant to the psychological object under consideration should be avoided (Keeves, 1988). It is difficult to discern how some items were important to the social climate of the classroom. For example, "The students would be proud to show the classroom to a visitor" (LEI); "Spelling is one of my favorite things to study" (Classroom Climate); "The teacher is very strict" (Classroom Environment Scale). It is hypothesized that some items from the existing questionnaires are irrelevant to learning in small groups. This hypothesis was tested in the present study by having participants rate the items for relevancy to small group work.

Fifth, statements that are factual or capable of being interpreted as being factual should be avoided (Keeves, 1988). Many of the existing instruments had items that conveyed facts in addition to attitudes. For example, "There are displays around the room" (LEI); "The room is bright and comfortable" (LEI); "The teacher explains what the rules are" (Classroom Environment Scale); "A lot of students 'doodle' or pass notes"

(Class Environment Scale); "The seating in this class is arranged in the same way each week" (CUCEI).

Sixth, items that have words like all, always, none, never should be avoided because they introduce ambiguity (Anderson, 1988). Words such as only, just, merely and others should be used in moderation. Many of the existing instruments had items that contained these words. For example, "In this class all of the students know each other well" (Classroom Life Instrument); "Only the good students are given special projects" (LEI); "Only a few students can get top marks" (Goal Orientation Scale); "Almost all class time is spent on the lesson of the day" (Classroom Environment Scale); "Students don't always have to stick to rules in this class" (Classroom Environment Scale); "Students seldom present their work to the class" (CUCEI).

Finally, items should be distinct so that they tap only one factor of the scale. There were items in the Classroom Life Instrument that were used to tap more than one dimension. For example, "Sometimes I think the scoring system is not fair", is used to measure the factor fairness of grading and the factor alienation. Four items from this instrument were used to measure the factor academic self-esteem and the factor alienation. For example, "I am not doing as well in school as I would like to"; "School work is fairly easy to me"; "Whenever I take a test I am afraid I will fail"; and "I am a good student".

Based on the content and technical limitations of the existing instruments to assess the small group climate, it was concluded that a new instrument was needed. The new instrument was to add to the existing instruments by assessing new dimensions not previously addressed, and by assessing dimensions that are relevant to small group work. In addition, steps were taken to avoid the technical flaws found in the instruments developed by other researchers.

METHOD

Subjects

There were three sets of participants used in this study: a) students with whom informal interviews were conducted; b) students who filled out a form pertaining to positive and negative aspects of small group work; and c) individuals who rated items for relevancy to small group work (students, teachers and experts). Informal interviews were conducted with students enrolled in an English literature course (N=39) at a junior college, in Montreal, Quebec. Forty-one grade nine students from a private Jewish secondary school, in St. Laurent, Quebec were used to fill out the positive/negative form. Participants who rated the items for relevancy were 378 secondary high students from Montreal, Quebec and Winnipeg, Manitoba; 55 secondary high teachers from Montreal, Quebec and Winnipeg, Manitoba; and 122 experts who have considerable experience in cooperative

learning from Canada and the United States.

Procedures for Conducting Informal Interviews

A classroom consisting of college students enrolled in an English literature course was observed over six observation visits. During these visits notes were taken on the types of tasks the students were assigned, number of students in a group etc. The observer did not interact with the students. In this class the teacher had no formal training in cooperative learning but had used group work in her classes for over twenty years. However, many of the strategies she used in her class were similar to cooperative learning. The teacher assigned the students to groups which remained intact. Each group member was assigned a specific role or task. For example, two students were responsible for generating the ideas and the discussion, one student was responsible for writing down every detail of the group discussion, and one student was in charge of organizing and handing in the group report. Student roles alternated every class meeting and reports were assigned a group grade.

On the final observation visit students were asked to comment about their experience of working in groups. The students were informed that their comments would not affect their grades in any way, nor would their teacher be informed on what they had disclosed. The interviews took place before or after class or during class time when a group had finished the

work early, not when student learning was going on. The length of the interviews lasted from one to ten minutes depending on the amount of information a particular student wanted to divulge. There was no specific format to the interview, however the sample questions that were asked were "How did you feel about learning in small groups?", "Do you think your marks improved or decreased because of working in groups?" and "Would you like to work in groups in the future?" This process generated 15 items which were later included with the items from existing questionnaires (See Appendix 2).

Procedures for Positive/Negative Form

The informal interviews provided rich detailed information on student thoughts and feelings about small group work. However, in order to get more systematic information student written descriptions of positive and negative features of group work were needed. A form was developed which asked students to list ten positive and ten negative aspects of working in groups (see Appendix 3). The students were asked to think about a time when they experienced group learning and to describe what they liked best and least about the experience. In order to elicit anonymous responses, students were not asked to write their names on the forms. The positive and negative features of small group work were converted into sixty-five items. See Appendix 4 for the actual student comments. See Appendix 5

for the sixty-five items. These 65 items, along with the 15 items created from the informal interviews, were added to the items from the existing questionnaires, thereby generating an initial item pool of 583 items.

Categorization Scheme

A categorization scheme was developed from the common themes that emerged from the 583 items. This scheme was developed by logic rather than by psychological or educational theory. The rationale for this was threefold: a) to determine provisionally the adequacy and comprehensiveness of the existing instruments; b) to examine what categories the new items tap into; and c) to have an undetermined number of categories to use. The categories were determined by the uniqueness of the object of the statements. The intention was to obtain as comprehensive a pool of items as possible and then to allow the nature and structure of student attitudes to be determined by subsequent empirical tests. The items tapped the following five major areas --Teacher, Content, Classroom/School, Self and Student. Within each major category the items were sub-categorized into minor categories. Teacher (Academic Support, Personal Support, Experimentation, Favouritism and Discipline); Content (Quality Of Work, Amount Of Work, Pace, Understanding, Work Habits, Enjoyment); Class/School (Classroom Organization/Procedures, Task Objectives, Student Centered Rules, Teacher Centered Rules, Enjoyment,

Surroundings); Self (Compatibility, Authority, Personal Support, Academic Support, Relying On Others, Competition, Individualistic, Positive Interdependence, Evaluation, Competence); and Student (Academic Compatibility, Personal Compatibility, Academic Support, Personal Support, Positive Interdependence, Different Ability). For the definitions of these categories please see Appendix 6.

Procedures for Coding Items

Each of the five hundred and eighty-three items, were printed on separate slips of paper. In addition, each item was assigned a letter which represented the scale from which the item was taken. The coders were unaware of the source of the items so that: a) their decisions as to how to categorize the item would not be influenced; and b) selection of an item to be subsequently rated for relevancy to small group learning would not be influenced. For reliability purposes two people categorized the items. Each person individually coded the items and then discussed why they thought an item belonged to a particular category. Each item was assigned a code that had three pieces of information: the major category, the minor category and the source. For example, the statement "The work takes less time when I work in a group" was given the following code "C PC H". The "C" referred to the major category "Content", the "PC" referred to the minor category "Pace" and the final letter "H" referred to the instrument that the

item came from. The coders did not know if "H" referred to the Classroom Climate Scale or the Learning Environment Inventory, etc. Therefore the categorization of the items was not influenced by knowing from which instrument or factor the item originally came from.

Item Selection Criteria

Since the initial item pool was substantial (i.e., 583 items), it was necessary to reduce the items that were to be rated by the participants. Therefore, the following steps were taken to reduce the item pool:

1. If items were similarly worded, only one item was selected. For example, "The teacher thinks up unusual projects for students to do" and "The teacher comes up with innovative activities for students to do" only one of these items was chosen.
2. If items were exact opposites, one item was selected. For example, "Students are well-satisfied with the work of the class" and "Students are dissatisfied with what is done in the class".
3. Items that were vague or too general and could be misinterpreted were not selected to be rated. For example, "Teaching approaches allow students to proceed at their own pace".
4. Items that were obviously irrelevant to small group work were not included if the were other more appropriate items in the category. For example, "I like to study what the teacher wants me to", "I feel that school

is preparing me for my life's work" and "Classes are a waste of time".

5. The "best" items in each minor category were selected. Twelve maximum per category.

It should also be noted that some items that stated "in this class" were changed to "in this group" so that the items were to receive high or low ratings based on the essence of the statement and not be rejected because of the words "in this class".

There were two hundred-ninety items after categorization and elimination of redundant, weak, or obviously irrelevant items. Table 1 shows an analysis of how items from the initial item pool were distributed according to item source. Table 2 shows how the selected items were distributed according to source. It is clear that each of the existing instruments samples from different areas of student attitudes. Furthermore, the attitude statements based on the student questionnaire and interviews added further to the comprehensiveness of the item pool. It appears that no one instrument captures the diversity of student attitudes toward small group work.

Procedures for Rating the Items

A subset of 290 items were selected to be rated for relevancy to small group work. Relevant items were ones that affected how students learned, how much they learned, and how much they enjoyed learning in groups. In

order to reduce rater fatigue, the items were randomly divided into five questionnaires according to colour: pink, yellow, green, beige and orange. In order not to impose on the raters they were asked to fill out only one of the coloured forms.

In order to get many perspectives on what is considered relevant when working in groups three types of participants were used-- students, teachers, and experts in the area of cooperative learning. In addition background information on the participants was requested in order to examine if the raters characteristics influenced the ratings of the items.

Student Raters

Prior to administering the forms to be rated, students were given a brief description of the project and were informed how to fill in the computerized answer sheets. High school students from Montreal were administered the questionnaire by the author; high school students from Winnipeg were administered the questionnaire by their classroom teacher. The teachers were sent instruction sheets in their packages consisting of questionnaires and answer sheets (see Appendix 6). The students were instructed to rate each statement from a scale of 1-5, where 1 was *not at all relevant* and 5 was *extremely relevant*. In addition to rating the items the students had to answer nine background questions: 1) Gender, 2) Grade average expected this year, 3) Grade average received last year, 4) At

Table 1

Initial Item Pool Distributed by Source and by Major Category

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	tot.
T	0	8	0	0	7	4	0	0	3	0	28	14	12	0	0	76
C	5	0	2	4	15	6	1	2	2	0	2	2	3	3	17	64
CS	5	1	0	1	38	1	0	0	1	0	28	22	6	0	0	103
M	20	40	21	11	0	7	7	6	2	0	4	0	18	12	11	159
S	2	10	8	0	45	24	0	0	3	12	28	11	1	0	37	181
total	32	59	31	16	105	42	8	8	11	12	90	49	40	15	65	583

1. Classroom Attitudes Scale
2. Classroom Life Instrument
3. Classroom Life Instrument (Long Version: extra 31 items from short form)
4. Untitled Questionnaire
5. Learning Environment Inventory (LEI)
6. Class Environment Checklist
7. Gross Cohesiveness Scale
8. Science Activity Questionnaire
9. Goal Orientation
10. Group Climate
11. Classroom Environment Scale
12. College and University Classroom Environment Inventory (CUCEI)
13. Minnesota School Attitude Survey
14. Fifteen items generated from informal interviews
15. Items generated from Positive/Negative Form

Table 2

Selected Item Pool Distributed by Source and by Major Category

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	total
T	0	5	0	0	5	0	0	0	3	0	15	10	2	0	0	41
C	0	0	2	3	5	0	0	1	1	0	0	1	3	3	17	36
CS	3	0	0	0	17	0	0	0	0	0	13	6	2	0	0	41
M	6	25	8	4	0	0	0	7	0	0	0	0	9	11	9	79
S	0	11	7	0	11	7	0	0	2	3	8	7	1	1	35	93
total	9	41	17	7	39	7	0	8	6	3	36	24	17	15	61	290

1. Classroom Attitudes Scale
2. Classroom Life Instrument
3. Classroom Life Instrument (Long Version: extra 31 items from short form)
4. Untitled Questionnaire
5. Learning Environment Inventory (LEI)
6. Class Environment Checklist
7. Gross Cohesiveness Scale
8. Science Activity Questionnaire
9. Goal Orientation
10. Group Climate
11. Classroom Environment Scale
12. College and University Classroom Environment Inventory (CUCEI)
13. Minnesota School Attitude Survey
14. Fifteen items generated from informa' .nterviews
15. Items generated from Positive/Negative Form

present, how often you work in groups? 5) Do you enjoy working in groups? 6) How often should students help each other learn in the classroom? 7) During a typical class period how much time do you spend working in groups? 8) How often would you like to work in groups in the future? and 9) Under which condition do you think you learn better?

Teacher Raters

Teachers from Winnipeg were contacted via a cooperative learning consultant from the CSCP. While the consultant was on site to train the teachers on cooperative learning he circulated packages to interested teachers. The packages contained a cover letter that described the purpose of the study and requested their participation in rating the items. Each package contained a different coloured form. The completed answer sheets were collected and returned. Similarly, a Montreal teacher was contacted to participate in this study. He engaged the participation of other teachers in his school and distributed the packages to them. He was responsible for collecting and returning the answer sheets.

Teachers had to complete the same questionnaires as the students except for the background questions. The teacher questions were: 1) Gender, 2) How many years of full-time (or equivalent in part-time) experience do you have in the field of teaching? 3) In your opinion, how often do you feel students should help each other learn in the classroom? 4)

During a typical class period, how much time do your students spend working in groups? 5) How often would you like your students to work in groups in the future? 6) How much formal training have you received in cooperative learning? 7) I enjoy using cooperative learning in my class, 8) I find cooperative group work enhances the quality of learning, and 9) In what curriculum subject area do you specialize in?

Expert Raters

In order to get experts in the field of cooperative learning which have varying expertise and philosophies, a mailing list was compiled from two sources: a) a cooperative learning staff development directory US (1992); and b) a list of presenters at the 1992 International Association for the Study of Cooperation in Education conference which was held in Utrecht (only Canadian and American presenters were contacted). Packages consisting of a cover letter, short research proposal, questionnaire, answer sheet and self-addressed envelope were mailed to 310 experts. One hundred and twenty-two completed answer sheets were mailed in The experts, like the students and teachers, completed one of the coloured forms and answered background questions. The questions were: 1) Gender, 2) How many years of experience as a trainer or researcher do you have in the field of cooperative learning? 3) Presently, which of the following best describes your current position or occupation? 4) In the cooperative learning training

you have received, what method have you found yourself most influenced by? 5) In your opinion how often do you believe students should work in groups? 6) In your opinion how often do you feel students should help each other learn in the classroom? 7) During a typical class period, how much time do you feel students should spend working in groups? 8) I find cooperative group work enhances the quality of learning, and 9) Under which condition do you think students learn best?

Analyses

In order to determine the reliability of the item ratings Pearson correlations were performed. This statistical procedure was used because it estimated how strong the relationships were among the characteristics of the raters.

Since three types of participants were used in this study, it was necessary to examine how each set of participants rated the items. Did students rate the items differently from teachers and experts? In addition, did other factors, such as gender, influence how the items were rated for relevancy to small group work?

This study examined the following:

1. Overall, did the students, teachers, and expert rate the items differently?
2. Did male participants rate the items differently from female participants?
3. Did students, teachers and experts who have much experience with small

group work rate the items differently from those who have little or no experience?

4. Did higher ability students rate the items differently from lower ability students?

5. Did students who enjoy small group work rate the items differently from students who do not enjoy being in groups?

6. Did teachers who enjoy using small group work in their classrooms rate the items differently from teachers who do not like implementing it in their classes?

7. Did experts who feel that cooperative learning enhances learning rate the items differently from experts who do not feel that way.

RESULTS

The results section is divided into four parts: Part One, characteristics of the rater participants; Part Two, relationships between rater characteristics and item ratings for relevancy to small group work; Part Three, areas of agreement and disagreement among raters (i.e., highest rated categories and items); and Part Four, sources of the highest rated items (i.e., from which questionnaires the best items came from). In examining the source of the highest rated items, the adequacy of the existing questionnaires and the newly generated items was determined. The best categories and items within those categories were included in the

final version of the questionnaire. "Best categories and items" were ones that received the highest ratings from the various types of raters.

Software Programs Used in this Study

Descriptive and inferential statistics were used to determine which categories and items within the categories were deemed as being relevant to small group work by students, teachers and experts. Descriptive statistics that were conducted were means (for the items) and medians (for the major and minor categories). The relationships between the item ratings between subsets of participants were analyzed via Pearson correlations.

The two programs used to conduct the analyses were EXCEL and SPSS. For each of the 290 items the following information was entered onto EXCEL: color of questionnaire, item number, major and minor category, source, actual item, and mean for the item. This program was especially useful in sorting the data in numerous ways. For example, the data was sorted by the color of the questionnaire, by categories, and by highest to lowest item means. The EXCEL program was used to compute medians for the major and minor categories.

The SPSS program was used to perform Pearson correlations. In order for correlations to be performed on the subsets of participants the following steps were taken. First, in order to examine the item means of the various participants the AGGREGATE subprogram was used. The

aggregate program groups cases together on a value of a certain variable (Norusis, 1990). This aggregate function was used to cluster the means for each item for students, teachers, and experts. In addition, this procedure was followed to examine the item ratings of the various types of participants (i.e., gender). Second, the FLIP command was used in order to organize the data into columns. For example, for each of the 290 items there was a column of means for students, teachers, experts, males, and females etc. It was necessary for the data to be organized in this way in order to perform subsequent correlations. Third, correlations were conducted on the aggregated means for each subset of participants.

Part One: Characteristics of Raters

Five hundred and fifty five raters were used to rate items for relevancy to small group work: 378 students, 55 teachers and 122 experts. From the total rater population 42.4% were male while 57.6 % were female. These participants each rated one of the coloured forms: 126 pink forms, 118 yellow, 117 green, 107 beige and 85 orange.

Students. Looking at the student population, 35.2% were in grade seven, 14.2% grade eight, 19.2% grade nine, 12.8% grade ten, and 18.6% from grade eleven. There was almost an equal amount of male and female students (47.9% 52.1%, respectively). Examining the grades the students expected and the grades they received the year before revealed that the

majority of students were high academic achievers. Almost half of the student population expected grades in the range of eighty through eighty-nine (52.4%), while only 5.0% of the students expected grades 60-69, and less than 1% expected grades 59 and lower. Looking at their grades for the previous year revealed similar results. The majority of the students (45.2%) received grades in the 80-89 range, 9.3% received grades 60-69, while less than 1% received grades from 59 and lower. Sixteen and a half percent of students received grades between 90-99.

Examining how often students work in groups revealed that 55.7% of the students responded *sometimes*. Less than 1% responded that they *always* worked in groups while less than 1% said that they have *never* worked in groups. Half of the students (50.3%) claimed that they enjoyed working in groups *most of the time*. Approximately twenty-one percent of the students said that they *always* enjoyed working in groups while 0.8% claimed *not at all*.

Students were also asked if they would like to work in groups in the future. There was a tie between the response categories *most of the time* (41.3%) and *sometimes* (41.8%). Less than 1% responded *never*. Finally, students were asked under what condition they learn better in. More than half of the students stated that they learn better when working with other students (54.9%). Approximately thirty percent of the students felt they learn better when they work alone, while fifteen percent claimed they learn

better when they compete with other students.

Teachers. The majority of the teacher raters were female (58.5%) as opposed to males (41.5%). Approximately forty percent of the teachers had between five to ten years of full-time teaching experience. Approximately 1% were first year teachers, while less than 1% had fifteen years or more of experience. Approximately forty-one percent of the teachers stated that students worked in groups *half the time.* Only 5.7% of the teachers said that their students worked in groups *all the time.* When asked if they would like their students to work in groups in the future, almost half (49.1%) responded *sometimes*. When asked if they find cooperative learning enhances the quality of learning half the teachers (50.9%) responded *sometimes*, 3.8% said *most of the time* and 13.2% said *rarely.*

Approximately sixty percent of teachers claimed that they enjoyed using cooperative learning in their classrooms *sometimes*. Less than 1% said that they enjoy using it *most of the time* while 13.2 % said *rarely.* More than half (52.8%) of the teachers stated that their formal training in cooperative learning was at the introductory level. The areas the teachers specialized in were arts and languages (31.7%), social sciences (17.1%) and applied sciences (51.2%).

Experts. The majority of the expert raters were female (75.4%). Approximately sixty percent of the expert raters had between five to ten years of experience in cooperative learning. Approximately nine percent

had fifteen years or more of experience while less than 1% had one year or less of experience. Most of the experts stated that they were influenced by the Johnsons (58.7%). Teachers said that they were influenced by Kagan (19.3%), Slavin (6.4%) and other or do not know (13.8%).

When asked how often students should work in groups, 93.9% of the expert raters said *frequently*, 5.2% of the experts stated *sometimes* while less than 1% said *always*. When asked how much time students should spend in groups 49.1% stated *half the time*, 43.8% *more than half,* while less than 1% stated *all the time*. Most of the experts (73.9%) felt that cooperative learning enhances the quality of learning *most of the time,* while only 2.6% felt that learning was enhanced *sometimes.* One hundred percent of the expert raters stated working with other students was the condition students learn better in.

Part Two: Relationships between Characteristics and Item Ratings

Do the characteristics of the participants influence the way they rate the items for relevancy? Is there a difference in the way students, teachers and experts rate the items? Do gender, ability, experience with group work, and liking of group work bias the way the items were rated? In order to select the most relevant items for the final questionnaire it was necessary to explore any differences in the ratings of the items.

Correlations on Total Data Set

Before investigating the characteristics of the raters on item ratings a baseline correlation was established for each of the subgroups. A correlation coefficient was established by randomly dividing the participants, in order to have a standard for comparing the other correlations performed on the data. First, a correlation coefficient was computed by randomly dividing all 555 participants into two groups. This was done via SPSS. The correlation between the two sets of randomly split participants was 0.91.

The second correlation computed on the 555 participants was gender. The coefficient for male item ratings and female item ratings was 0.84. The strong relationship between the item ratings of males and females indicated that males and females rated the items similarly.

The next correlation computed was on the aggregated item means of students, teachers and experts. The correlation coefficient between student ratings and teacher ratings was 0.63. The correlation coefficient between student ratings and expert ratings was 0.74. The correlation coefficient between teacher ratings and expert ratings was 0.78. The coefficients for students and experts, and teachers and experts were moderate. Since the relationship between the participants were not very strong, especially between students and teachers, there were differences of opinion among the raters. Therefore, this discrepancy was taken into account when selecting

the items for the final version of the questionnaire.

Correlations on Subgroups of Participants

Students. First, a correlation coefficient was computed by randomly dividing all 378 student participants. The correlation between the two sets of randomly split student participants was 0.85. Therefore, the baseline coefficient for student participants was 0.85. The median split used to randomly split the students was 0.18.

Item ratings were compared for students who had experience with group work and students who had little experience or no experience. The coefficient for these two sets of participants was 0.74. In order to get this coefficient student background question four was used "At present, how often do you work in groups at school?" This question had five response categories (always, frequently, sometimes, seldom, never) which were collapsed into two categories. The two categories were much experience (always, frequently, sometimes) N=297 and little experience (seldom, never) N=80. Since the correlation of 0.74 was quite high compared to the correlation of 0.85, there was a strong relationship between the items rated by students who had much experience versus students who had little experience.

Next, item ratings were compared for students who were expecting a high grade that year and students who were expecting a low grade. The

coefficient for the these two sets of participants was 0.79. Student background question two was used "Average grade you expect this year?" The two collapsed categories were expected high grade (90-99, 80-89) N=242 and expected low grade (70-79, 60-69, 59 and below) N=136. Since the correlation of 0.79 was quite high, there was a strong relationship between the items rated by students who considered themselves to be high academic achievers and low academic achievers. Even though grades between 70-79 are not usually considered as being low, this response category was placed in the low grade category in order to have a more even split (as opposed to N=356, N=22, respectively).

In addition student ability was examined by looking at the grades the students had received the year before. Background question three "Average grade received last year" was used to split high and low achieving students. The coefficient for item ratings for high achieving students and low achieving students was 0.80. The collapsed response categories were high grade (90-99, 80-89) N=232 and low grade (70-79, 60-69, 59 and below) N=144. Since the correlation of 0.80 was quite high, there was a strong relationship between the items rated by students who were high academic achievers and low academic achievers. Therefore, regardless of ability the students rated the items similarly.

Finally, the ratings of students who enjoy working in groups versus students who do not enjoy group work were compared. Student background

question five was used for this correlation "Do you enjoy working in groups?" The two collapsed response categories were much enjoy (always, most of the time) N=269 and little enjoy (sometimes, very little of the time) N=99. The correlation coefficient on the aggregated item means for students who enjoy group work versus those who do not was 0.76. Since there was a high correlation between the two sets of participants, it can be concluded that they rated the items similarly.

Teachers. First, a correlation coefficient was computed by randomly dividing all fifty-five teacher participants. The median split used to randomly split the teachers was -0.187. The correlation between the two sets of randomly split teacher participants was 0.45. This baseline correlation was quite low compared to the other randomly split groups. This indicated that there was disagreement among teachers as to what was relevant to small group work. It is hypothesized that the low correlations were due to the low sample size of teachers. Since fifty-five teachers rated one of the five forms, approximately ten teachers rated each form.

The item ratings for teachers who had much experience with group work versus teachers who had little or no experience were compared. The coefficient for the these two sets of participants was 0.56. Teacher background question four was used "During typical period, how much time do your students spend working in groups?" The two collapsed response categories were much experience with group work (all the time, more than

half the time, half the time) N=37 and little experience (less than half the time, never) N=16. Compared to the other correlations a coefficient of 0.56 seems to be quite low, however, compared to the baseline coefficient of 0.45 there was more agreement between teachers split by small group experience than between the teachers split randomly. Therefore, experience with group work did not influence the teacher ratings.

Finally, the aggregated item ratings of teachers who enjoyed using cooperative learning in their classrooms were compared to teachers who do not enjoy using group work. Teacher background question seven was used for this correlation "I enjoy using cooperative learning in my class". The collapsed response categories were enjoy using cooperative learning (most of the time, often) N=14 and enjoy using cooperative learning less (sometimes, rarely, none of the time) N=39. Correlations on the aggregated item means for teachers who enjoyed using cooperative learning in their classrooms versus those who did not was 0.42. Since the coefficient of 0.42 was similar to the benchmark coefficient of 0.45, it can be said that enjoyment of using cooperative learning did not influence the item ratings.

However, since the low sample size of teachers may explain the low correlations found, the characteristics of the teachers were not taken into account when selecting the items.

Experts. As in the case of students and teachers, a correlation coefficient was computed by randomly dividing all 122 expert participants.

The correlation between the two sets of randomly split expert participants was 0.86. The median split used to randomly split the experts was -0.200.

Next, item ratings were compared for experts who had many years of experience with cooperative learning and experts who had few years of experience. In order to get this coefficient expert background question two was used "How many years of experience as a trainer or researcher do you have in the field of cooperative learning?" The two categories were little experience (1 year or less, 2-5 years, 5-10 years) N=89 and much experience (10-15 years, 15 years or more) N=26. This split yielded a high correlation of 0.82. There was a strong relationship between the items rated by experts who had many years of experience versus experts who had few years of experience.

Finally, the item ratings of experts who felt cooperative learning enhanced learning were compared to experts who did not feel that way. Expert background question eight was used for this correlation "I find cooperative group work enhances the quality of learning". The collapsed response categories were enhances learning much (most of the time) N=85 and enhances learning a little (often, sometimes) N=30. Correlations on the aggregated item means for experts who felt that group work enhanced learning much versus those who felt that it enhanced learning less often was 0.75. Since the coefficient of 0.75 was similar to the benchmark coefficient of 0.86, this factor did not influence the expert item ratings.

Summary

Conducting Pearson correlations on the aggregated means of each of the two-hundred ninety questionnaire items show that some factors influenced the relevancy ratings and others did not. One major finding is that students, teachers and experts to some degree rated the items differently from one another. Overall, teachers and experts rated the items higher than did students. Therefore, further investigation was needed to investigate which categories and items the participants agreed and differed on.

Second, the gender of the participants did not influence the relevancy ratings to small group work. Male and female participants rated the items similarly. Third, experience with small group work did not influence the ratings of the items. The ratings of participants (students and experts) who had little experience with group work corresponded with the item ratings of those who had much experience with group work. The ratings of students who like group work and experts who feel group work enhances learning were similar to the ratings of participants who did not feel that way. Therefore, liking of group work did not influence the rating of the items. Finally, as mentioned earlier, the surprisingly low correlations for the teacher data was attributed to the low sample size of teachers.

Part Three: Areas of Agreement and Disagreement Among Raters

Selection Criteria: Assessing Agreement and Disagreement

In order to locate the sources of agreement and disagreement the following steps were taken:

1. The medians for the minor categories were computed for students, teachers and experts separately.

2. The medians for the minor categories were plotted in a table in order to view how the participants rated each category. (See Table 3).

3. A second table listed the highest to lowest rated categories (medians) by students, teachers and experts. (See Table 4).

4. The next step was to see if there were commonalities between the highest rated categories by students, teachers and experts. The criteria used was: the twenty top rated categories by all three types of respondents; fifteen top rated categories by two types of respondents; ten top rated categories by one respondent.

5. In addition to examining the highest rated categories, the highest rated items were also investigated. In order to choose the highest rated items, a combined mean (student mean, teacher mean, and expert mean) was computed for each of the items. There were two sets of criteria for looking at the highest rated items. First, two items per high rated category were selected to be included in the final version of the scale. These items received the highest ratings based on the combined mean for the three types

of participants. Second, due to possible miscategorization some items may not be selected even though they received high ratings. Therefore, a second set of criteria was also adopted. The forty top rated items were explored for students, teachers and experts. Items were selected if they fell in the top forty rated items by all three participants; the twenty-five top rated items by two participants; and the fifteen top rated items by one participant.
6. The results yielded by using two sets of criteria were pooled together in order to obtain a set of items and categories that were deemed as being relevant to the small group experience.

Procedures for Selecting Items

Highest Rated Categories. The final questionnaire was to be a comprehensive one, that is, that tapped into many aspects of group work considered relevant by various participants. Therefore, in addition to including categories that were rated highly by all three sets of participants (top 20 categories), categories that were rated highly by two sets (top 15) or by one set of participants (top 10) were also included.

By examining the medians of the minor categories for students, teachers and experts, it became evident that thirteen categories were considered relevant by all three raters. From the major category Content (C) the highest rated minor categories were: Quality of Work (CBI) (i.e., the originality, creativity and quantity of work produced in groups); Pace (CPC)

Table 3

Medians per category by respondents (Students, Teachers and Experts)

MAJOR CATEGORIES			
	Students	Teachers	Experts
CONTENT	3.72	3.83	4.20
CLASS/SCHOOL	2.99	3.06	3.20
TEACHER	2.43	3.63	3.05
SELF	2.93	3.18	3.40
STUDENTS	3.16	2.91	3.49

CONTENT			
	Students	Teachers	Experts
BI	3.77	3.90	4.42
BU	3.56	4.05	4.64
PC	2.86	3.89	3.75
WE	3.29	3.99	3.67
WH	3.39	4.01	4.33
WL	2.89	2.98	3.46

CLASS/SCHOOL			
	Students	Teachers	Experts
CE	2.42	2.61	2.92
DF	2.80	3.23	3.23
OJ	2.91	3.37	3.05
OR	2.41	2.69	2.20
RC	2.24	2.56	2.36
SU	1.86	2.76	2.00

Table 3 continued

	TEACHER		
	Students	Teachers	Experts
AS	2.63	3.45	2.86
DX	2.54	2.73	2.07
EX	2.56	2.96	2.45
FV	2.33	2.36	1.97
PS	2.27	3.63	2.86

	SELF		
	Students	Teachers	Experts
AH	3.51	3.77	4.32
AL	3.15	3.23	3.85
AU	2.05	1.94	1.46
CT	2.78	3.55	3.24
ER	2.76	3.43	3.90
EV	2.92	3.29	3.51
I.F	2.82	3.17	3.98
NI	3.11	3.13	3.69
OC	2.34	2.91	2.82
PH	2.58	3.37	3.52

Table 3 continued

	STUDENTS		
	Students	Teachers	Experts
CO	2.82	2.41	2.73
DA	3.24	3.74	3.66
DS	3.46	4.14	4.23
FG	3.14	3.13	3.17
FL	3.51	3.62	3.94
HA	3.61	3.85	4.28
HP	2.81	3.61	3.53
IN	3.06	3.61	3.89
LW	3.43	3.30	3.71
RE	2.75	3.18	3.18
SC	3.28	3.2	3.41
SO	3.48	3.91	3.94

Table 4

Medians of Minor Categories Listed From Highest to Lowest

STUDENT MINOR CATEGORY RANKS			TEACHER MINOR CATEGORY RANKS			EXPERT MINOR CATEGORY RANKS		
1	3.77	CBI	1	4.14	SDS	1	4.64	CBU
2	3.61	SHA	2	4.05	CBU	2	4.42	CBI
3	3.56	CBU	3	4.01	CWH	3	4.33	CWH
4	3.51	MAH	4	3.99	CWE	4	4.32	MAH
4	3.51	SFL	5	3.91	SSO	5	4.28	SHA
6	3.48	SSO	6	3.90	CBI	6	4.23	SDS
7	3.46	SDS	7	3.89	CPC	7	4.17	SHP
8	3.43	SLW	8	3.85	SHA	8	3.99	MLF
9	3.39	CWH	9	3.77	MAH	9	3.94	SFL
10	3.29	CWE	10	3.74	SDA	9	3.94	SSO
11	3.28	SSC	11	3.63	TPS	11	3.90	MER
12	3.24	SDA	12	3.62	SFL	12	3.89	SIN
13	3.15	MAL	13	3.61	SHP	13	3.85	MAL
14	3.14	SFG	13	3.61	SIN	14	3.75	CPC
15	3.11	MNI	15	3.55	MCT	15	3.71	SLW
16	3.06	SIN	16	3.45	TAS	16	3.69	MNI
17	2.92	MEV	17	3.43	MER	17	3.67	CWE
18	2.91	CSOJ	18	3.37	CSOJ	18	3.66	SDA
19	2.89	CWL	18	3.37	MPH	19	3.52	MPH
20	2.86	CPC	20	3.30	SLW	20	3.51	MEV
21	2.82	MLF	21	3.29	MEV	21	3.46	CWL
21	2.82	SCO	22	3.23	MAL	22	3.41	SSC
23	2.81	SHP	22	3.23	CSDF	23	3.24	MCT
24	2.80	CSDF	24	3.20	SSC	24	3.23	CSDF
25	2.78	MCT	25	3.18	SRE	25	3.18	SRE
26	2.76	MER	26	3.17	MLF	26	3.17	SFG
27	2.75	SRE	27	3.13	MNI	27	3.05	CSOJ

Table 4 Continued

28	2.63	TAS	27	3.13	SFG	28	2.92	CSCE
29	2.58	MPH	29	2.98	CWL	29	2.86	TAS
30	2.56	TEX	30	2.96	TEX	29	2.86	TPS
31	2.54	TDX	31	2.91	MOC	31	2.82	MOC
32	2.42	CSCE	32	2.76	CSSU	32	2.73	SCO
33	2.41	CSOR	33	2.73	TDX	33	2.45	TEX
34	2.34	MOC	34	2.69	CSOR	34	2.36	CSRC
35	2.33	TFV	35	2.61	CSCE	35	2.20	CSOR
36	2.27	TPS	36	2.56	CSRC	36	2.07	TDX
37	2.24	CSRC	37	2.41	SCO	37	2.00	CSSU
38	2.05	MAU	38	2.36	TFV	38	1.97	TFV
39	1.86	CSSU	39	1.94	MAU	39	1.47	MAU

(i.e., the extent to which class work is covered quickly); Understanding (CBU) (i.e., the content is easier to master when working in groups); Enjoyment (CWE) (i.e., the degree of content enjoyment when learning in groups); and Work Habits (CWH) (i.e, work habits such as organization improve). From the major category Self (M) the minor category that was considered relevant was: Academic Support (MAH) (i.e., the impression that other students care for a students' success). From the Student category (S) the minor categories were: Different Abilities (SDA) (i.e., working with students with different academic ability); Academic Compatibility (SDS) (i.e., degree of friction between members due to academic disputes); Personal Compatibility (SIN) (i.e., degree of social compatible with the other group members); Positive Interdependence (SFL) (i.e., equal involvement of all the group members); Academic Support (SHA) (i.e., the academic support system among students); Learning to Work with Others (SLW) (i.e., learning to cooperate with other members); and Socializing/Interaction (SSO) (i.e., social interaction among group members).

In addition, three categories were considered relevant by some raters but not by others. One category that was considered relevant by students and experts but not by teachers was the Individualistic (MAL) (i.e., the extent that students prefer to work alone) which came from the major category Self (M). Two categories were considered relevant by only one set of participants. From the major category Student (S) the minor category

Personal Support (SHP) (i.e., degree of caring among students) received high ratings from experts. In addition, experts deemed the Positive Interdependence (MLF) (i.e., student effort to attain goals) category to be relevant to small group work.

Therefore, following the selection criteria as mentioned, sixteen categories were considered as being relevant to small group work. Thirteen categories were regarded as being relevant by all three sets of participants; one category was believed to be important by two sets of participants; and two categories by one set of participants.

Low Rated Categories. Looking at the ten lowest rated categories revealed that raters also agreed on categories that were irrelevant to small group work. From the major category Teacher (T) the minor categories Experimentation (TEX) (i.e., teacher's creative teaching methods); Discipline (TDX) (i.e, disciplinarian role of teacher); Favouritism (TFV) (i.e., teacher favors some students over others) received low ratings by students, teachers and experts. The Class/School (CS) category had three minor categories that were universally agreed upon as being irrelevant to small group work. They were: Classroom Procedures/Organization (CSOR) (i.e., procedures followed in the classroom); Teacher Centered Rules (CSRC) (i.e., rules imposed by the teacher or school) and Surroundings (CSSU) (i.e., physical environment of the classroom). Two minor categories Competition (MOC) (i.e., degree a student feels in competition with others) and Authority Figure

(MAU) (i.e., student does well to impress teacher, principal or parents) from the major category Self (M) received low ratings.

Students and experts agreed that the Teacher Personal Support (TPS) category (i.e., teacher cares about students) was irrelevant to small group work. In addition, there was agreement between students and teachers that School/Class Enjoyment (CSCE) (i.e., liking of school) was not important to small group work. Based on the consistent low ratings of these minor categories they were not included in the final questionnaire.

Highest Rated Items

In addition to examining the highest rated categories, the highest rated items were also investigated. As mentioned, there were two sets of criteria used to find the highest rated items. Using the first criteria, two items from the sixteen selected categories were included in the final version of the scale. The selected items were ones that received the highest combined means (i.e., student mean, teacher mean, and expert mean). Using the second criteria ensured that important items were not excluded because of possible miscategorization. The forty top rated items were explored for students, teachers and experts. Items were selected if they fell in the top forty rated items by all three participants; the twenty-five top rated items by two types of participants; and the fifteen top rated items by one type of participant. However, if these items came from categories that

Table 5

Item Rankings By Students, Teachers and Experts
(Items with an * next to them were selected for the final questionnaire)

Form	Item	Maj	Min	Src	S	T	E	Actual Item
*B	19	C	BI	H	5	46	23	I am able to share ideas
*G	11	C	BI	H	2	7	2	We come up with more ideas
G	26	C	BI	H	69	17	15	I do better work when in
G	30	C	BI	H	124	120	87	My work is not as original
P	10	C	BI	H	73	114	68	My work is more creative
*G	14	C	BU	H	47	11	7	I learn new things
G	46	C	BU	H	30	18	38	Assignment is easier group
O	15	C	BU	B	119	29	6	We learn more when in groups
P	35	C	BU	T	45	19	20	Being part of group helped me
P	39	C	BU	T	139	32	86	I would have learned more
*P	40	C	BU	Y	22	12	13	I understand material better
Y	59	C	BU	Y	64	121	35	Content is easier in a group
O	18	C	PC	V	259	154	181	I have to hurry to finish
O	41	C	PC	D	96	155	182	Students work at own pace
P	16	C	PC	S	89	69	102	Members have time to cover material
P	22	C	PC	H	120	122	113	It takes less time to
*P	56	C	PC	H	48	123	80	I can get more work done
P	57	C	PC	H	213	175	221	Students rarely compete
P	64	C	PC	S	112	215	143	Members feel rushed to
Y	23	C	PC	S	167	200	164	Pace of class rushed
*Y	65	C	PC	H	93	25	83	Takes longer to complete
*B	15	C	WE	H	28	14	46	Work more fun in group
B	47	C	WE	Y	54	55	48	I enjoy material more
B	59	C	WE	S	57	115	104	Students enjoy their group
*G	31	C	WE	L	142	8	33	Made me want to find out
G	48	C	WE	S	118	221	64	Students are dissatisfied
G	62	C	WE	T	178	146	88	I think I would like content
O	14	C	WE	V	281	182	253	I do school work because
O	16	C	WE	B	143	33	43	Working in groups better
O	19	C	WE	V	194	142	216	I do work because its
*B	21	C	WH	H	105	47	84	Students learn better
*G	56	C	WH	H	65	70	34	My work habits improve
B	13	C	WL	H	256	272	200	Too much information
B	37	C	WL	H	66	30	137	Workload is usually less
G	66	C	WL	Q	60	34	74	I work hard to learn
Y	54	C	WL	H	94	147	127	I have less work to do when

B	28	CS	CE	S	217	185	115	Members look forward to
G	20	CS	CE	P	280	222	243	I usually like school
P	38	CS	CE	S	237	257	197	Students are satisfied with
P	55	CS	CE	P	233	148	193	I like this class
Y	42	CS	CE	P	276	287	278	Glad if I didn't go to school
B	61	CS	DF	S	215	211	240	Enjoy same privileges
G	19	CS	DF	N	278	189	202	Students allowed make up project
G	36	CS	DF	N	277	262	267	Can choose where they sit
*O	51	CS	DF	D	6	4	1	Opportunity to express opinion
*O	59	CS	DF	D	161	13	92	Opportunity to pursue interest
Y	24	CS	DF	N	242	267	246	Little to say how time spent
Y	44	CS	DF	S	172	176	141	Decisions made by all students
G	23	CS	OJ	S	184	71	207	Each knows the goal of course
G	24	CS	OJ	N	90	72	154	Assignments are clear
O	31	CS	OJ	V	103	246	208	I like to be told exactly what to do
*O	37	CS	OJ	D	7	73	42	Getting amount done important
P	29	CS	OJ	S	128	212	189	Class realizes how much work
P	36	CS	OJ	S	138	149	167	Class knows what it has to do
P	37	CS	OJ	S	168	161	145	Each has clear idea of
Y	35	CS	OJ	S	173	248	210	Members are confused
B	33	CS	OR	N	250	199	268	Set ways of working on
B	55	CS	OR	S	247	172	196	Class is well organized
G	63	CS	OR	N	162	239	209	Activities are clearly planned
O	38	CS	OR	D	41	208	229	All expected to do same work
O	50	CS	OR	D	195	223	214	Seldom present work to class
P	21	CS	OR	N	271	274	284	Class hardly starts on time
P	26	CS	OR	S	222	105	177	All procedures well established
Y	55	CS	OR	S	260	282	271	Class is disorganized
B	38	CS	RC	N	283	280	274	Rules in class change a lot
G	12	CS	RC	N	211	89	153	Clear set of rules to follow
G	49	CS	RC	N	230	124	232	Teacher sticking to rules
G	54	CS	RC	N	218	162	257	Teacher consistent dealing
O	12	CS	RC	D	104	224	174	Instructor decides will be done
O	40	CS	RC	V	133	183	249	Teacher fair in making me
P	14	CS	RC	N	268	275	270	There are few rules to follow
P	28	CS	RC	N	257	240	245	Sure if something is against
B	16	CS	SU	S	289	254	286	Good collection of books
G	53	CS	SU	S	279	276	283	Displays around room
P	17	CS	SU	S	261	249	272	Class is bright and comfortable
P	59	CS	SU	S	197	177	223	Books and equipment
Y	41	CS	SU	S	286	250	258	Proud to show class to visitor
B	26	M	AH	L	101	97	58	I want to help with their
B	30	M	AH	T	12	137	63	I find someone who will
G	33	M	AH	R	226	125	5	Students care how much I

G	61	M	AH	R	78	90	3	We try to make sure
O	11	M	AH	V	146	118	36	I like to have others help
*P	34	M	AH	R	61	9	22	Students like to help me
*P	50	M	AH	R	86	26	11	I am learning when I teach
Y	15	M	AH	R	36	106	53	I like to get help from my
G	18	M	AL	Y	115	216	89	Working with students
G	25	M	AL	R	38	56	52	I like to work with others
*O	27	M	AL	B	20	57	37	Bothers me when I do it
O	33	M	AL	B	263	64	59	I do not like working with
*O	34	M	AL	B	33	45	60	I do better work when work
O	57	M	AL	B	152	91	105	I would rather work on
O	62	M	AL	V	108	27	45	I would rather work with
P	19	M	AL	H	88	74	75	I can not concentrate when
Y	11	M	AL	H	163	225	169	I do better job when I work
Y	31	M	AL	H	159	258	156	I like working alone
Y	37	M	AL	H	154	226	166	More efficient to work
Y	47	M	AL	Y	158	178	157	I learn better when I work
B	45	M	AU	R	272	290	290	I do work to keep teacher
G	27	M	AU	Y	125	75	142	I like receiving info from
P	13	M	AU	L	97	179	241	Important teacher thinks I
P	46	M	AU	R	284	285	282	I do work to make teacher
Y	20	M	AU	R	288	277	287	I do work to make parents
G	44	M	CT	T	140	20	16	I am an important member
G	65	M	CT	R	198	126	212	I am doing a good job
O	44	M	CT	V	3	54	9	I am just as important as
O	56	M	CT	V	220	107	263	I do not learn well if free
*O	61	M	CT	V	23	5	10	I feel I am part of what is
O	66	M	CT	V	129	163	159	I have many questions I do
Y	14	M	CT	R	191	201	125	I find it hard to speak my
Y	17	M	CT	R	234	263	265	I am a good student
Y	28	M	CT	R	251	273	276	I take a test I am afraid I
Y	60	M	CT	R	254	253	280	School work is easy to me
B	18	M	ER	R	227	186	98	I do work because members
*B	39	M	ER	R	29	15	41	We can't complete
B	56	M	ER	R	84	22	28	I have to make sure learn
P	62	M	ER	R	113	127	81	I have to find out what
Y	66	M	ER	Y	179	150	131	I like relying on students
B	10	M	EV	T	192	173	118	I would have better grades
B	24	M	EV	Y	147	58	76	I get higher grade in group
B	29	M	EV	H	98	48	99	My marks improve in a group
B	50	M	EV	Y	102	83	77	I don't think group grade
G	10	M	EV	H	132	281	233	Marks higher than group
O	43	M	EV	V	25	198	176	Grade my work fairly
O	54	M	EV	V	134	108	242	My grades really show how

P	23	M	EV	R	122	128	162	I deserve the grades I
P	63	M	EV	R	164	202	194	I think grade system not
B	11	M	LF	L	231	255	134	I want to do as little as
B	31	M	LF	Y	135	266	119	Expect me to do most work
G	16	M	LF	L	131	227	149	I just want to do what
G	38	M	LF	L	136	203	139	I do not have to work hard
*G	59	M	LF	H	59	164	65	I don't get work done I talk
Y	22	M	LF	Y	53	217	120	I like member similar goals
*Y	34	M	LF	H	155	129	72	I let others to do all the
B	35	M	NI	H	74	256	183	Important to like members
*B	67	M	NI	L	11	23	180	I want to work with my
G	50	M	NI	P	109	35	155	I like most students in my
G	55	M	NI	Y	169	109	95	I like working other ethnic
O	46	M	NI	B	42	101	31	I like to work with others
*P	20	M	NI	Y	8	76	178	I prefer to choose students
Y	32	M	NI	Y	95	130	126	I feel comfortable opposite
Y	53	M	NI	R	203	151	97	I should get along better
G	64	M	OC	P	282	283	260	I don't like who do their
O	28	M	OC	V	72	65	133	I like to get better grades
O	32	M	OC	B	85	87	175	I like to do better work
O	45	M	OC	B	235	220	187	I like to compete with
O	63	M	OC	B	126	92	198	I work to get better grades
P	33	M	OC	R	39	36	50	I like to cooperate with
Y	13	M	OC	L	255	228	199	Important to do better
Y	40	M	OC	P	149	93	62	I want students to get good
Y	52	M	OC	P	236	131	190	Most students get good
G	42	M	PH	R	228	37	30	Students care about me
*P	11	M	PH	T	15	1	12	Students should work
P	18	M	PH	R	141	59	56	Students care about my
P	31	M	PH	P	182	110	93	I care if students absent
P	44	M	PH	P	145	165	117	Many students like me
Y	49	M	PH	R	240	264	259	Best friends are in this
B	27	S	CO	S	206	288	256	Most want their work
B	40	S	CO	S	232	289	238	Compete to see who do best
B	42	S	CO	Q	200	229	252	Want to know how others
B	66	S	CO	S	144	138	163	Some members try to do
O	26	S	CO	V	241	66	184	My friends want to do
P	58	S	CO	Q	196	187	217	Only a few s can get top
Y	63	S	CO	W	185	241	219	Want their work better
B	20	S	DA	H	67	145	107	Members who understand
*B	23	S	DA	H	68	31	136	Intelligent work with
*P	42	S	DA	H	10	132	122	I like working students
P	49	S	DA	H	180	77	158	Have to work with less
Y	64	S	DA	H	166	78	147	Like students who are

G	17	S	DS	H	49	38	69	Disagree with other
*G	47	S	DS	H	9	39	17	Respect the opinions of
G	52	S	DS	Y	62	49	71	Members confront each
O	25	S	DS	B	76	143	112	Arguing makes me unhappy
O	53	S	DS	B	221	133	51	I would like to be in
*O	60	S	DS	B	26	28	79	I rather work alone than
O	65	S	DS	B	123	40	32	I learn new things from
P	32	S	DS	S	99	111	57	Constant bickering among
Y	33	S	DS	H	160	190	96	I often agree to avoid a
Y	45	S	DS	W	37	112	73	Not willing to listen
Y	57	S	DS	H	110	50	66	Don't listen to each other
B	65	S	FG	N	157	116	206	Have to work hard for a
P	41	S	FG	R	79	60	103	Grade depends on how much
Y	10	S	FG	R	114	166	160	We all receive the same
Y	29	S	FG	R	189	191	165	Everyone has chance to
Y	48	S	FG	R	201	204	254	Get the grades they
Y	62	S	FG	N	121	265	173	Usually pass even if don't
B	14	S	FL	H	51	139	135	One who doesn't want to
*B	22	S	FL	R	34	10	27	Our job not done everyone
B	36	S	FL	H	17	213	100	Work divided equally in
B	44	S	FL	H	13	84	110	Do more work than others
B	48	S	FL	H	87	156	129	Teacher do not know who
B	62	S	FL	H	24	245	161	Hardly do work because
G	43	S	FL	H	40	192	70	Get off the topic
O	10	S	FL	B	27	67	25	We help each other with
O	20	S	FL	D	52	68	39	Put effort into what they
O	42	S	FL	D	170	102	44	Group gets sidetracked
O	64	S	FL	B	70	51	14	Check answers with other
P	25	S	FL	H	75	94	114	Have difficulty
*P	67	S	FL	R	1	16	4	Everyone ideas are needed
Y	25	S	FL	N	153	251	235	Spend time discussing out
Y	38	S	FL	H	80	134	82	I end up doing all the work
B	12	S	HA	H	43	117	67	I like helping with work
B	32	S	HA	H	16	140	47	Help each other learn
*G	57	S	HA	H	4	95	18	If I don't understand can
*G	58	S	HA	R	14	2	19	Its a good idea for
P	12	S	HA	W	106	41	55	Students care if members
P	27	S	HA	W	177	167	121	Students care if class
Y	39	S	HA	R	46	42	21	Learn important things
Y	46	S	HA	H	55	61	54	I help my members good at
*B	60	S	HP	N	181	24	78	Friendships have been made
B	63	S	HP	R	190	261	172	Everybody is a friend
*G	28	S	HP	S	107	52	109	Members do favors for
G	39	S	HP	S	156	205	124	Some are preferred over

P	51	S	HP	X	243	193	170	Reveal personal feelings
P	54	S	HP	S	212	242	222	Members are personal
B	41	S	IN	S	193	188	128	Members have different
B	58	S	IN	W	202	214	224	Students like to sit next to
G	15	S	IN	N	183	113	138	Some do not like each other
G	29	S	IN	X	81	135	90	Members like each other
O	52	S	IN	D	214	218	108	Aren't interested in
*O	67	S	IN	D	31	6	49	Friendships are made among
P	48	S	IN	H	165	136	151	I never get to be in group I
Y	12	S	IN	H	137	152	116	Criticize each other when
*Y	19	S	IN	H	116	79	106	Forced to work students I
B	51	S	LW	N	71	141	85	Enjoy working together on
*B	64	S	LW	H	35	3	24	I learn to work with many
*G	34	S	LW	H	18	96	8	Students learn to work
P	60	S	LW	H	58	80	29	Learn to appreciate others
P	66	S	LW	S	91	168	179	Students work with close
Y	30	S	LW	R	77	62	61	We have to share materials
Y	43	S	LW	H	63	43	26	I learn to work with others
Y	67	S	LW	W	82	230	185	Students favored more
B	52	S	RE	S	238	157	205	Failure of the class means
G	45	S	RE	H	92	206	94	Members forget to do the
P	45	S	RE	X	174	252	186	Members depend upon
B	34	S	SC	N	175	174	201	Its easy to get a group
G	32	S	SC	H	19	153	123	Difficult getting together
Y	36	S	SC	H	50	231	144	Difficult to continue work
B	25	S	SO	H	83	85	171	Too many people talk
G	21	S	SO	H	150	232	146	Make too much noise
G	35	S	SO	R	130	44	130	All know each other well
G	40	S	SO	W	151	81	140	Each has opportunity know
G	60	S	SO	N	127	21	111	Students get to know each
*G	67	S	SO	H	44	53	101	I like talking to my
O	22	S	SO	D	273	233	132	Do not know each other
O	30	S	SO	B	223	103	148	We do not talk to others
O	36	S	SO	D	290	209	150	Takes a long time to know
O	49	S	SO	D	21	158	91	Each student knows by first
P	47	S	SO	S	171	234	168	Some refuse to mix with
*Y	18	S	SO	H	56	82	40	You can talk with your
B	43	T	AS	R	244	98	195	Teacher cares how much I
B	54	T	AS	R	216	99	231	Teacher likes to help me
O	13	T	AS	V	100	247	248	I like to have teacher see
O	23	T	AS	D	204	159	152	Instructor seldom moves
O	39	T	AS	D	117	144	204	Teacher helps students
O	58	T	AS	D	207	169	227	Instructor talks than
P	52	T	AS	N	188	180	220	Teacher goes out of way to

Y	26	T	AS	Q	208	243	236	Makes sure I understand
Y	58	T	AS	Q	209	194	225	Pays attention I am
B	57	T	DX	N	252	235	250	Explains what happens
G	41	T	DX	N	269	278	275	Will put up with a good
P	53	T	DX	N	258	286	289	Can get away depend
Y	56	T	DX	N	253	236	211	Teacher explains what
Y	61	T	DX	N	229	268	285	Will kick student out of
G	37	T	EX	N	266	259	279	Teacher sticks to
G	51	T	EX	N	186	244	239	New ideas are being tried
O	21	T	EX	D	224	237	213	Seem to do same type of
O	24	T	EX	D	187	88	191	New teaching seldom used
O	29	T	EX	D	111	63	192	Teaching approach
O	48	T	EX	D	176	104	226	Thinks of unusual activities
P	24	T	EX	N	248	260	261	Likes s to try unusual
P	43	T	EX	N	274	284	288	Do the same kind of
P	65	T	EX	N	265	219	266	Teacher thinks up unusual
Y	27	T	EX	Q	199	195	215	Teacher wants us to try
G	13	T	FV	S	287	269	264	Only good given special
G	22	T	FV	S	249	196	234	Class controlled by acts of
P	61	T	FV	S	270	207	244	Certain students impose
Y	21	T	FV	S	245	197	277	Better student questions
Y	50	T	FV	S	219	270	273	Past histories discriminated
Y	51	T	FV	S	205	279	281	Better granted special
B	17	T	PS	R	275	100	237	Teacher really cares about
B	46	T	PS	N	239	86	230	Teacher takes a personal
B	49	T	PS	R	264	160	247	Teacher likes me as much as
B	53	T	PS	N	225	238	269	Teacher takes time out
O	17	T	PS	D	148	119	203	Considers student feelings
O	35	T	PS	D	285	184	228	Is not interested in
O	47	T	PS	D	267	210	251	Unfriendly and
O	55	T	PS	V	32	181	188	Interested in what I have
P	15	T	PS	N	210	170	255	Want to talk will find time
P	30	T	PS	N	246	271	262	Teacher more like a friend
Y	16	T	PS	R	262	171	218	Cares about my feelings

Form: Color of Questionnaire; Item: Item Number; Major: Major Category; Minor: Minor Category; Src: Source; S: Student; T: Teacher; E: Expert; Actual Item: Item (in abbreviated form).

are already represented, then the items were not included. Using the first criteria for item selection, yielded thirty-two items. By using the secondcriteria for item inclusion, revealed that there were an additional nine items that were regarded as being highly relevant to small group work but not represented. These nine items were combined with the other thirty-two items thus, forty-one items were selected for the final version of the instrument.

However, by including these nine items an additional six categories were added. They were: Student Centered Rules (CSDF) (i.e., students involved in decision-making) 2 items; Task Objectives/Goals (CSOJ) (i.e, objectives of assignment are clear) 1 item; Personal/Academic Competence (MCT) (i.e, students's self-perception about social and academic competence) 2 items; Relying on others (MER) (i.e., contribution of group members) 1 item; Compatibility (MNI) (i.e., extent that a student feels compatible with others) 2 items; and Personal Support (MPH) (i.e., student's self-perception that students care for him/her) 1 item.

Summary

Looking closely at the highest rated categories by students, teachers and experts it became evident that there were commonalities in the category ratings. That is, all three sets of raters considered certain categories as being relevant to small groupwork. Even though the rankings

of the categories differed slightly they were in the highest rated section (i.e., within the top 20 categories). However, there was the risk of misrepresenting the data if only these thirteen categories were selected for the final questionnaire. What about the categories that were considered relevant by two types of raters? Or categories that were considered relevant by only students? Or teachers? Or experts? From their own experiences students, teachers and experts each provide important insights on what is considered relevant to small group work. By incorporating the selection criteria, sixteen categories were regarded as being highly relevant to the small group experience. Thus, the new instrument captured what was regarded as being relevant from various perspectives.

Following a similar line of reasoning, two sets of criteria were used to guide the item selection for the final questionnaire. In addition to looking at the top two items per selected category, the top rated items per student, teacher and expert rater were examined. By combining the two criteria, a comprehensive collection of items was selected for the final instrument.

Part Four: Source Of Highest Rated Items

The adequacy of the existing instruments in assessing small group dimensions was examined. Once the forty-one top rated items were selected, it was determined from which instruments they came from. Did the highest rated categories and items come from the most widely used

instruments? Were the new items that were generated by student comments rated highly by the participants, thus being included in the final scale? What new factors were addressed based on the new information gathered in this study?

The results, based on the selection criteria for highest rated categories and items, revealed that more than half (51.2%) of the items that comprise the new scale came from items generated from student comments from the positive/negative form. That is, nineteen items from the top forty-one items came from student statements generated from the positive/negative form (#15) and two items from the informal interviews conducted with students (#14) (See table 6). Approximately 21% of the items came from the Classroom Life Instrument (#2 & #3). Six items came from the short form and three items from the extra thirty-one items from the long version of the instrument. Approximately ten percent of the items (4 items) from the new instrument came from the College and University Environment Inventory (CUCEI, #12). However, considering that the CUCEI was based on the Learning Environment Instrument (LEI), only one item from the LEI (#5) was included in the final scale. Two items from each of the Minnesota School Attitude Survey (#13), and the Science Activity Questionnaire (#8) made the selection criteria and were included in the new scale. One item included in the new instrument came from the Classroom Environment Scale (CES, #11), and one item from the Untitled

Questionnaire (#4).

Items from five existing questionnaires did not meet the selection criteria and thus were not included in the final scale. Items from the Classroom Attitudes Questionnaire (#1), Class Environment Checklist (#6), Gross Cohesiveness Scale (#7), Goal Orientation Scale (#9), Group Climate Scale (#10) were not considered as being relevant to small group work. As can be seen in Table 4, out of thirty-two items from the Classroom Attitudes Scale, nine were selected and subsequently rated by participants. None of the items from this scale were considered to be relevant to small group work by students, teachers and experts. None of the seven items rated from the Classroom Environment Checklist were included in the new scale. None of the items from the Gross Cohesiveness Scale were considered relevant because none of the items from this scale were rated by participants. This occurred because the source of the statements was not known to the coders. Thus it was possible for items from some questionnaires not to included in the selected item pool which was subsequently rated by participants. Surprisingly, the Classroom Environment Scale (CES) which is a commercial instrument had only one of its items included in the new questionnaire. From the 90 items, thirty-six items were rated by participants. Only one item was regarded as being highly relevant to small group work.

Based on these results it can be concluded that new dimensions

Table 6

Distribution of Attitude Items by Major Category and Questionnaire Source

SOURCE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total
TEACHER ***T***	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CONTENT ***C***	0	0	0	0	0	0	0	1	0	0	0	0	0	1	8	10
CLASS/ SCHOOL ***CS***	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3
SELF ***M***	0	3	2	1	0	0	0	1	0	0	0	0	2	1	2	12
STUDENT ***S***	0	3	1	0	1	0	0	0	0	0	1	1	0	0	9	16
TOTAL	0	6	3	1	1	0	0	2	0	0	1	4	2	2	19	41

1. Classroom Attitudes Scale
2. Classroom Life Instrument
3. Classroom Life Instrument (Long Version: extra 31 items from short form)
4. Untitled Questionnaire
5. Learning Environment Inventory (LEI)
6. Class Environment Checklist
7. Gross Cohesiveness Scale
8. Science Activity Questionnaire
9. Goal Orientation
10. Group Climate
11. Classroom Environment Scale
12. College and University Classroom Environment Inventory (CUCEI)
13. Minnesota School Attitude Survey
14. Fifteen items generated from informal interviews
15. Items generated from Positive/Negative Form

Table 7

Number of Items from each Questionnaire Selected for the New Instrument

Instrument	Number of items	Number of Selected Items	Number of Items included in final scale
1. Classroom Attitudes Scale	32	9	0
2. Classroom Life (short form)	59	41	6
3. Classroom Life (extra 31 items)	31	17	3
4. Untitled Questionnaire	16	7	1
5. Learning Environment Inventory	105	39	1
6. Classroom Environment Checklist	42	7	0
7. Gross Cohesiveness Scale	8	0	0
8. Science Activity Questionnaire	8	8	2
9. Goal Orientation	11	6	0
10. Group Climate Questionnaire	12	3	0
11. Classroom Environment Scale	90	36	1
12. College and University Environment Inventory	49	24	4
13. Minnesota School Attitude Survey	40	17	2
14. Items from Informal Interviews	15	15	2
15. Items from Positive/Negative Form	65	61	19

considered relevant to small group learning were discovered. The items tap new areas of small group learning which were not previously addressed in the existing questionnaires. The items from the new scale which were generated by student comments about small group work assess the following areas: 1) more and better ideas; 2) better understanding; 3) amount of time it takes to complete the assignment; 4) pace of the work; 5) work enjoyment; 6) work habits; 7) different abilities of group members; 8) disputes among members; 9) learning to work with others; 10) socializing; 11) freeloading; 12) compatibility with members; and 13) student support. Factor analyses will be performed in a future study to see how items from these areas cluster together and thus considered factors. See Appendix 7 for the forty-one items selected for the final questionnaire.

DISCUSSION

The discussion is divided into five sections: overview, discussion of major findings of the study, implications for practitioners, limitations of the study and suggestions for future research.

Overview

Maximizing the potential of student learning is a fundamental goal of schools. Therefore, teachers, school administrators and educational researchers are interested in developing and implementing educational

methods that facilitate learning and increase productivity in the classroom. A learning method that is presently receiving much attention from the educational community is cooperative learning. A vast amount of research documents that cooperative learning is superior to other types of learning for various reasons: a) students learn more; b) students enjoy the material more; c) students feel better about themselves as academic learners; d) student-teacher relationships and student-student relationships improve; e) social skills (e.g., cooperation, communication, active listening) are enhanced; and f) students become more active learners.

However, regardless of the promising research findings there are problems associated with this type of learning which are not always addressed in the literature. On many occasions students are not satisfied with small group learning for various reasons. These reasons are often informally expressed to the teachers but are not documented in the cooperative learning literature. This often leads to teachers vocalizing certain cliches such as "professors in ivory towers do not know what goes on in real classrooms" or "this method simply does not work with *my* students" or "cooperative learning is a passing fad". Therefore, small group learning may be abandoned for more "tried and true" methods such as whole class instruction. However, since over the years countless studies have shown that there are benefits in cooperating to learn, attempts should be made to highlight and resolve the potentially problematic areas of small

group learning. By clarifying and understanding what works and what does not work in small group learning, or in any type of learning for that matter, will undoubtedly strengthen the method. In order to achieve this understanding, insights from participants who have experienced small group learning must be taken into consideration. Failure to acknowledge and address the strengths and limitations of small group leaning will eventually condemn a promising method to failure.

Therefore, the major purpose of this study was to determine various features that influence the effectiveness of the small group experience. What are the aspects of group learning that students have strong positive and negative attitudes towards? To address this question previously researched factors were investigated along with new information from students as to what affects the effectiveness of the small group experience. The final result was a collection of attitude statements collected from various sources and that were perceived by various types of individuals to be highly relevant to small group learning.

In this study the term small group learning was used for the following reason. This term encompassed both cooperative learning which is very structured and traditional group work which is often times more lax. There are many variations of working cooperatively with students. That is, on occasions regular group work may be more structured than is "pure" cooperative learning due to poor implementation of cooperative learning

strategies. In addition, many students may not be aware of the term cooperative learning even though they may have experienced it. Therefore, in order to capture a whole range of student comments and student observations about working with other students a more general term was used.

Findings of the Study

If there are aspects of small group learning that evoke strong reactions in students, especially negative ones, why are they not addressed in the literature? Results from this study support the assumption that the instruments presently used in research do not assess many features that students have strong positive and negative attitudes towards. The existing instruments are inadequate on three grounds. First, most questionnaires used in small group research to measure student attitudes assess the classroom learning environment. Most of the items from these questionnaires measure aspects that occur in the whole class and have only a few items that are relevant to small group learning. For example, "All classroom procedures are well-established" (LEI) or "Teaching approaches allow students to proceed at their own pace" (CUCEI) or "Sometimes the teacher embarrasses students for not knowing the right answer" (CES). Questionnaires such as the Learning Environment Inventory (LEI), College and University Classroom Environment Inventory (CUCEI), and the

Classroom Environment Scale (CES) may indeed be reliable and valid instruments however, since they were not developed to specifically assess aspects of small group learning they are not appropriate to use in cooperative learning studies. This is evidenced by the fact that very few items from these questionnaires were selected for the final instrument: only four items from the CUCEI, one item from the CES, one item from the LEI, no items from the Classroom Climate Questionnaire, and no items from the Classroom Environment Checklist were included.

Second, questionnaires that were developed to measure small group learning do not capture many critical aspects that enhance or hinder learning in groups. For example, the Classroom Life Instrument has ninety items that pertain both to whole class learning and small group learning. Nine items (i.e., combined short and long version) were selected to comprise the new instrument. Therefore, since only twenty-two percent of the new instrument is comprised of items from the Classroom Life Instrument, it is apparent that this questionnaire failed to measure some important features of small group learning.

Third, many instruments, even those that are commercial instruments (e.g., Classroom Environment Scale (CES) contain some items that have technical flaws. Some of these flaws are in the form of length, ambiguity, wording, two ideas conveyed in a single statement, and attitudinal and factual items being intermixed.

The major finding of this study is that existing instruments failed to capture some important dimensions pertaining to small group learning. The fact that twenty-one of the forty-one items selected for the final instrument were ones that were created in this study, indicates that there was a need to develop a questionnaire that assesses new dimensions. More than half of the items that met the selection criteria and were chosen for the final version of the questionnaire came from statements generated from the informal interviews and from the positive/negative form. As mentioned earlier, the two coders that selected the items to be rated and the five hundred and fifty-five participants that rated the 290 items were intentionally not aware of the source of the item. In other words, the ratings of the items were not influenced by knowing from which questionnaire the items came from. It was only after the forty-one items for the final scale selected was the source examined. Remembering the fact that these items came from an initial item pool of 583 items and that they were rated not only by 378 students, but also 55 teachers and 122 experts in the field of cooperative learning, reinforces the importance of student feedback and participation in the learning process.

Relationships Between Rater Characteristics and Item Ratings. One aspect of this study examined the relationships between the characteristics of the raters and the ratings of the items. Characteristics such as gender,

experience with group work, liking of group work, and student ability were investigated in order to determine if these factors influenced the way the items were rated. It was necessary to examine these characteristics so that there was more confidence in the items that were selected to comprise the final version of the instrument. The high correlations indicate that the participants rated the items similarly. That is, males and females had similar views of what was considered highly relevant to small group work and what was not at all relevant. Similarly, participants who had much experience with small group learning had similar views as participants who had little experience. Participants who liked small group learning rated the items similarly to participants who did not like small group work. In addition, high academic achieving students had similar views as low achieving students as to what was considered relevant to learning in groups. Therefore, based on the results of this study it can be concluded that these characteristics did not influence the ratings of the items. The selected items and the selection criteria can not be critiqued for failing to take these characteristics into account.

Based on the findings of this study, one characteristic that did influence the relevancy ratings was type of participant. The correlations for the item ratings between students and teachers (0.63), students and experts (0.74), and teachers and experts (0.78) were moderate compared to the correlation of 0.91 for the items of participants split randomly. At times

there was universal agreement between the raters while at other times students, teachers and experts had different opinions as to what was important when working in groups. This became evident when looking at the rankings of the means for the two hundred and ninety items. For example, the statement "There are opportunities for students to express opinions in a group" which was selected for the final questionnaire was ranked 6th by students, 4th by teachers and 1st by experts. "We come up with more ideas when we work in a group" was ranked 2nd by students, 7th by teachers and 2nd by experts. Another selected item "Students should work together to learn" was ranked 15th by students, 1st by teachers and 12th by experts.

However at times, there was less agreement between the raters. For example, the selected statement "When working in groups I want to work with my friends" was ranked 11th by students, 23rd by teachers and 180th by experts. This finding proves that there is a vast difference of opinion among raters as to what is important when working in groups. By using the selection criteria mentioned earlier this discrepancy was discovered and incorporated when selecting the final items. Another noted discrepancy between the raters was for the statement "I like working with students who understand the material". According to the item means this item was ranked 10th by students, 132nd by teachers and 122nd by experts. It was obvious that students considered this feature to be more relevant to the

small group experience than did teachers or experts. In addition, an item from the same category (i.e., different abilities) "When working in groups academically stronger students have to work with weaker ones" was ranked 68th by students, 31st by teachers and 136th by experts. It is not surprising that students and teachers considered this feature to be more important than did experts. Advocates of cooperative learning suggest that students be assigned to heterogeneous groups in terms of ability because students learn more when grouped in this manner.

"When working in groups students learn to work with others" is another example of the differences of opinion as to what was considered relevant in working in groups. This statement was ranked 18th by students, 96th by teachers and 8th by experts. Learning to work with other students was considered as being very important to students and experts but not by teachers. Perhaps a reason for this finding is that teachers place more emphasis on learning of academic material rather than on learning how to work with others.

Also, "Working in groups makes me want to find out more about the topic" was considered relevant to teachers and experts (ranked 8th and 33rd), however students gave this statement much lower ratings (ranked 142nd). Generating interest in the material was considered important especially by teachers, yet, students were less concerned with this issue. Since, the selection criteria were implemented to highlight the areas of

agreement as well as disagreement among raters this item was included in the final questionnaire.

The selection of the final items was strengthened by incorporating three types of perspectives-- student, teacher and experts. The implications of these findings for practitioners are addressed at a later point in this paper.

High Rated Categories and Items. The aspects of small group learning that received the highest ratings by students, teachers and experts, were in the following areas: Content: CBI: being able to share ideas and coming up with more ideas; CBU: understanding the material better and learning new things in a group; CPC: being able to do more work in less time and taking longer to complete assignments; CWE: the work being more fun and wanting to learn more about the topic; and CWH: work habits improving and students learning better work habits. Class/School: CSDF: opportunities to express opinions and opportunities to pursue interests; and CSOJ: getting a certain amount of work done being important.

Self: MAH: students liking to help a student and feeling that a student learns when he/she teaches others; MAL: being bothered by having to do all the work and feeling that better work is done when working alone; MCT: feeling of being as important as others and being part of what is going on; MER: everyone contributing in order to complete the assignment;

MLF: not getting work done because of talking with members and letting other students do all the work; MNI: wanting to work with friends and preferring to choose the group members; and MPH: feeling that students should work together to learn.

Student: SDA: academically stronger students having to work with weaker ones and preferring to work with students who understand; SDS: students respecting the opinions of others and preferring to work alone rather than arguing; SFL: everyone's ideas being needed to succeed and job not being done until everyone has finished; SHA: members explaining work if students do not understand; SHP: friendships being made and members doing favors for one another; SIN: being forced to work with students that are not liked; SLW: learning to work with many people: and SSO: being able and liking to talk to group members.

A surprising finding was that some areas that are usually considered as being relevant to the small group experience did not receive very high ratings in this study. For example, the issue of evaluation usually provokes strong reactions in students. However, the two categories that contained items pertaining to evaluation (i.e., MEV and SFG) received modest ratings. Out of the thirty-nine minor categories the evaluation (MEV) category was ranked 17th by students, 21st by teachers, and 20th by experts. The fairness of grading system (SFG) category was ranked 14th by students, 28th by teachers and 26th by experts.

In addition, advocates of cooperative learning claim that receiving academic support and personal support by teachers is important to students and to student learning (Johnson & Johnson, 1989). However, students, teachers and experts in this study gave these categories moderate to low ratings. The teacher academic support (TAS) category was ranked 28th by students, 16th by teachers, and 29th by experts. Teacher personal support (TPS) was ranked 36th by students, 11th by teachers, and 30th by experts. Overall, teachers rated these two categories higher than students or experts. Items from the five teacher categories (e.g., academic support, personal support, favouritism, experimentation and discipline) did not meet the selection criteria, therefore these categories are not represented in the final instrument. Perhaps, a reason for this is that the role of the teacher is viewed as being less important when learning in groups than when learning in whole class format. In small group learning the teacher's role is to observe and monitor the students as they work with their group members. The teacher is primarily concerned with observing behaviour, praising appropriate behaviour and work habits and giving immediate feedback (Cantlon, 1991). This role of the teacher is different from the role the teacher assumes in whole class format, which is to deliver and explain the material to the class.

In selecting the items for the new questionnaire the highest rated categories and items by students, teachers and experts were included. In

addition, items were modified or reworded if: a) items were written in the past tense; b) items contained two ideas (i.e., contained the word *and*); c) items were too long (i.e., unnecessary words were eliminated); d) items were vague (i.e., what the word *it* refers to); e) items reflected a fact rather than an attitude; f) items contained words such as *all, never, none, always*; and g) items contained words such as *only, just, merely* (Anderson, 1981).

Implications for Practitioners

The development of this new instrument has practical implications for educators and trainers of cooperative learning. The information generated in this study provided new insights as to what influences the effectiveness of the group experience. Knowing the areas that students have strong attitudes towards can strengthen the method and alleviate some of the concerns that are associated with it. By arming teachers with this information, they can then make informed decisions as to what will work with their students and what may cause problems. On many occasions teachers receive training in cooperative learning, implement the strategies and elements in their classrooms and find that this style of learning does not work. Teachers may falsely conclude that the method did not work because they did something wrong or that they have difficult students to contend with. Had they been alerted to some of the problems inherent in this method they would be better prepared to deal with the

issues if and when they occurred.

In addition, cooperative learning trainers can utilize this information when training educators to implement cooperative learning in their classrooms. Trainers can take this information into account when making recommendations to teachers on how to assign students to groups, structure the task, improve student interactions, and evaluate the group work.

One interesting finding in this study was that working with their friends was very important to students but not to teachers and experts. This was not surprising because most of the cooperative learning literature suggests grouping students heterogeneously in terms ability, ethnicity and gender (Johnson & Johnson, 1989; Slavin 1990). Teachers are usually discouraged from letting students work with their friends because friends tend to be "alike" and the literature shows that students learn more when working in mixed groups (Cantlon, 1991). However, since wanting to work with friends received very high ratings from students (i.e., 11th out of 290) serious consideration should be given to how students are placed into groups. Perhaps students should be given the opportunity to choose the students they work with in addition to having the teacher assign them to groups. This recommendation is supported by the fact that statements such as "When working in groups I am forced to work with students I do not like", "I like working with students who understand the material". "When working in groups academically strong students have to work with weaker

ones" and "When working in groups I prefer to choose the students I work with" were chosen for the final questionnaire.

Decisions regarding how the task is structured and how the work is divided among the group members should not be taken lightly. There is always the chance that some students will end up doing more work than others, and thus create resentment among group members. Therefore, in order to eliminate negative attitudes associated with this matter teachers must make absolutely certain that the task is divided equally among the members. Teachers must also monitor the students as they work together in order check that each student is contributing fully to the group. Equal contribution of group members was considered very relevant by the participants in this study. This is evidenced by the following statements that comprise the new scale: "I let the other students in the group do all the work" "When working in groups everyone's ideas are needed if we are going to be successful", "When working in groups we can not complete the assignment unless everyone contributes", "When working in groups our job is done when everyone has finished the assignment", and "When working in groups it bothers me if I have to do more work than other students".

Based on the results of this study, statements considered very relevant pertained to the quality of work that is produced when working cooperatively. Some of the statements were: "We come up with more ideas when we work in a group", "I am able to share my ideas when I work in a

group", "I do better work when I work alone", "I understand the material better when I work in a group", "I learn new things when I work in a group".

Based on the findings, statements associated with the academic relationships between group members received high ratings. Some statements pertaining to the academic relationships between group members were: "Students in my group like to help me learn", "I learn when I teach other students", "If I do not understand the work my group members can explain it to me", and "When working in groups students should help each other learn". Since mutual giving and receiving help from group members is important, teachers should make it perfectly clear to the students why they should help each other learn. Teachers must stress the benefits of cooperating (i.e., learning increases, opportunity to work with students with different personalities etc.) in order for students to accept working with others without resentment. If teachers do not provide a clear explanation or rationale as to why students must cooperate to complete the task students may consider this to be a useless exercise (Cantlon, 1991). In addition, teachers should make sure that the assigned task is one that can be done in a group. Sometimes the assigned task is an individual one (i.e., plotting points on a graph), and students may become resentful if they feel the task could be completed more efficiently working on their own.

In addition, statements that pertained to the social relationships

between students received high ratings and were thus included in the final scale. These were: "Friendships are made among group members", "I feel I am part of what is going on in the group", "I am as important as any other student in the group", "When working in groups a lot of friendships are made." In order to make small group learning a productive and enjoyable experience, teachers should emphasize the social as well as the academic aspects of working in groups. One way this could be achieved is by having students partake in activities that promote a bond between the members. Activities that promote trust and communication between students are labelled teambuilding activities (Abrami, et al., 1991). Educators should not assume that by simply seating students together an instant liking or instant cohesion will take place.

Limitations

Creating a new instrument to be used in the field is a worthwhile yet challenging experience. Even though much time and deliberation went into generating, selecting and rating the attitude statements, there are limitations with the findings. First, regardless of how thorough the literature searches in this study were conducted, there may be other questionnaires relevant to small group learning that were not located. In addition, eliciting comments from other student populations may reveal relevant aspects of small group learning not measured in the new

questionnaire. Including items from other questionnaires and other students may enhance the instrument developed in this study.

Second, low correlations were found on the teacher data even when split randomly. A larger sample of teachers may have yielded higher correlations. Attempts were made to get more teachers to rate the items, however due to uncontrollable factors (e.g., disputes between the teachers union and school administrators) this was not feasible.

Third, the categorization scheme employed in this study was developed for the purpose of organizing and reducing the initial item pool. All of the five-hundred and eighty three items were categorized using the five major categories and then placed in one of the thirty-nine minor categories. Even though the categories were to be distinct, there was overlap among the categories. This problem occurred because the minor categories were very fine tuned, therefore some items belonged to more than one category. However, overlapping categories (e.g., student academic support and self academic support) were not collapsed because the problem will be eliminated by performing factor analyses on the items in the near future.

Finally, results from this study must be interpreted with caution since the reliability and validity of the new instrument have not been established. The measurement principles of this instrument will be established in future studies.

Suggestions for Future Research

As noted early on in this paper, this study focused on the first phase of questionnaire development. The main objective was to obtain a comprehensive pool of items that were considered to be highly relevant to small group learning. Steps that have to be taken in order to strengthen the quality of the information generated from this questionnaire are: a) factor analyses; b) reliability; and c) validity.

In order to perform factor analyses on the new forty-one items to determine the factors the items are really measuring, new data will have to be collected. Hundreds of students will have to complete the final instrument in order to determine the underlying structure of student attitudes and to organize the items into factors. The results of the factor analyses will determine the number and nature of the factors. Based on the results of the factor analyses the instrument will have to be revised by eliminating poor items (e.g., skewed response distributions, lack of common variance, etc.). In addition, items should be eliminated if it is found that a large number of items measure one factor and items must be added if one factor is represented by only one item. Also, the categories or the labels of the factors will have to change based on the results of the factor analyses.

The next step is to determine the instrument's measurement characteristics. Establishing the questionnaire's measurement principles is of fundamental importance, because an instrument that is not reliable or

valid is of no use to either researchers or educators (Devellis, 1991). One possible way to establish the reliability of the instrument is test-retest reliability (i.e. How reliable are the responses from this questionnaire? Are the responses stable over time?). Hundreds of secondary school students are required to complete the revised questionnaire. The students should vary in experience with small group learning and represent a wide range of abilities, and interests. A subset of these students will be asked to complete the instrument a second time later to determine the test-retest reliability of the instrument.

Validity must be established by investigating the criterion-related validity of the attitude measure (specifically predictive validity). Whether and which student attitudes toward group work predict and explain student learning should be examined in future studies. Some possibilities worth investigating are:

1. If attitudes toward specific aspects of group work (e.g., like to help others learn etc.) are related to the general satisfaction and liking of group work.
2. If attitudes predict how well students learn in small groups (relationship between attitudes and learning).
3. If attitudes predict other outcomes and behaviors such as: motivation, help giving, asking for help, amount of interaction etc.
4. If teachers who receive feedback about student attitudes toward small groups are able to use the information to change student attitudes and

make cooperative learning, and other small group activities more effective and enjoyable learning experiences.

When the reliability and predictive validity of the instrument are established, the questionnaire will then be ready to be used in the field.

CONCLUSION

A determination of the aspects of small group learning which evoke strong positive and negative attitudes in students can only be accomplished by asking the individuals who have experienced the method first-hand. The reliability and validity of a questionnaire should be examined not only in terms of its statistical properties, but also in terms of assessing aspects deemed relevant by the individuals it was designed for. Simply relying on factors that have been derived from previous research can lead to erroneous conclusions. In order to get an accurate and realistic glimpse of the small group experience an appropriate attitude instrument must be used. However, in investigating attitudes toward small group learning one must also examine the context in which the method exists. That is, the organization of the educational system and of society may have an enormous impact on the success or failure of a learning method.

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Appendix 1

Instruments Used In This Study

SCALE: Classroom Attitudes Scale

I. Social Relations

A. Feeling liked and supported

1. Many students in my class like me.
2. I don't have many friends in this class.
3. The students in this class are usually friendly.
4. Many students in my class don't like me.
5. When I do my best in school work, many students in this class like me.
6. Most students in this class want me to do poorly on tests and quizzes.

B. Liking and supporting others

7. I like most of the students in this class.
8. I don't want to be friends with many of the students in this class.
9. I feel friendly toward many of the students in this class.
10. I don't like most of the students in this class.
11. I want most students in this class to get good grades.
12. I don't want most students in this class to get good grades.
13. I don't like students who do their best in school work.

C. Liking for group work

14. I would like to study with other students in a group.
15. I don't like to help other students on their school work.
16. I like to get help from other students on my school work.
17. I would not like to study with other students in a group.

D. Mutual concern for absence

18. Most students in this class care if I am absent from school.
19. Most students in this class don't care if I am absent from school.
20. I care if other students in this class are absent from school.

II. Schoolwork

A. Liking for school

21. I usually like school.

22.I'd be glad if I didn't have to go to school.
23.I'd be sorry if I couldn't go to school.
24.Usually I feel bad when I'm at school.

B. Liking for class
25.I like this class.
26.This class is boring.
27.This is a good class.
28.I don't like this class.

C. Liking of spelling
29.Learning to spell is a lot of fun.
30.I don't like spelling.
31.Spelling is one of my favorite things to study.
32.Learning to spell is not a lot of fun.

SCALE: Classroom Life Instrument

Cooperative learning

In this class:
51. I like to share my ideas and materials with other students.
53. I can learn important things from other students.
54. I like to help other students learn.
55. I try to share my ideas and materials with other students when I think it will help them.
57. it is a good idea for students to help each other learn.
58. I like to cooperate with other students
59. students learn lots of important things from each other.

Positive goal interdependence

When we work together in small groups:
8. we try to make sure that everyone in our group learns the assigned material.
14. our job is not done until everyone in our group has finished the assignment.
21. we all receive the same grade.
27. our grade depends on how much all members learn.
34. I have to make sure that the other members learn if I want to do well on the assignment.

Resource interdependence

When we work together in small groups:
39. we cannot complete an assignment unless everyone contributes.
47. the teacher divides up the material so that everyone has a part and everyone has to share.
50. we have to share materials in order to complete the assignment.
52. everyone's ideas are needed if we are going to be successful.
56. I have to find out what everyone else knows if I am going to be able to do the assignment.

Teacher academic support

My teacher:
22. Cares about how much I learn.
28. likes to see my work.
33. likes to help me learn.
38. wants me to do my best in schoolwork.

Teacher personal support

My teacher:
13. really cares about me.
15. thinks it is important to be my friend.
40. likes me as much as he/she likes other students
43. cares about my feelings.

Student academic support

In this class other students:
1. want me to do my best schoolwork.
5. like to help me learn.
17.care about how much I learn.
25. want me to come to class every day.

Student personal support

In this class other students:
7. think it is important to be my friend.
20. like me the way I am.
29. care about my feelings.
31. like me as much as they like others.
35. really care about me.

Class cohesion

In this class:
2. are my best friends.
10. I like to work with others.
24. everybody is a friend.
41. I am often lonely.*
44. all of the students know each other well.

Fairness of grading

In this class:
16. everyone has an equal chance to be successful if they do their best.
32. if a student works hard, he/she can definitely succeed.
42. students get the scores they deserve, no more and no less.
45. I deserve the scores I get.
49. sometimes I think the scoring system in *not* fair.*

Achieving for social approval

I do school work:
9. to make my teacher happy.
12. because my classmates expect it of me.
23. to make my parents happy.
26. to keep my teacher from getting mad at me.
37. to be liked by other students.

Academic self-esteem

3. I am not doing as well in school as I would like to.*
6. School work is fairly easy to me.
18. Whenever I take a test I am afraid I will fail.*
19. I am doing a good job of learning in this class.
46. I am a good student.

Alienation.

3. I am not doing as well in school as I would like to.
4. I find it hard to speak my thoughts clearly in class.
6. School work is fairly easy for me.
11. I should get along with other students better than I do.
18. Whenever I take a test I am afraid I will fail.*
30. I often get discouraged in school.
36. I have lots of questions I never get a chance to ask in class.
41. I am often lonely in this class.
46. I am a good student.

48. I often feel upset in school.
49. Sometimes I think the scoring system in this class is *not* fair.

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* The scoring of these items should be reversed.

SCALE: Classroom Life Measure (extra 31 items)

Cooperation, Scale 2

1. In this class we work together.
2. In this class students check answers with other students.
3. In this class we help each other with our school work.
4. In this class we learn more when we work with others.

Individualistic learning

5. In this class it is important that we learn things by ourselves.
6. In this class we spend a lot of time working at our desks.
7. In this class we do not talk to other students when we work.
8. In this class we work by ourselves.
9. It bothers me when I have to do it all myself.
10. I like my work better when I do it all myself.
11. I do not like working with other students in school.
12. Working in small groups is better than working alone.
13. I like to work with other students.
14. I do better work when I work alone.
15. I would rather work on school work alone than with other students.

Competitive Learning

16. I like the challenge of seeing who is best.
17. I do not like to be second.
18. I am happiest when I am competing with other students.
19. Competing with other students is a good way to work.
20. I work to get better grades than other students do.
21. I like to compete with other students to see who can do the best work.
22. I like to do better work than other students.
23. I like to be the best student in the class.

Controversy

24. I learn new things from arguing with other students.
25. I would rather work alone than argue.
26. I would like to be in a group where students often disagree with each

other.
27. Arguing with other students makes me feel unhappy.

Valuing Heterogeneity

28. I learn more from students who are similar to me.
29. I would like to be in a learning group with students who are different from me.
30. I have more fun when I work with students who are different from me.
31. I learn more from students who are different from me.

SCALE: Untitled Questionnaire

Valuing French

I enjoy this French class.
I want to take French next year.

Valuing Cooperation

I think I would like French better if I were not in a group.
I think students should work together to help each other.

Personal Benefit

I'm learning when I teach other students.
I was an important member of my group.

Motivation: SP of Success

Being part of a group helped me learn.
I would have had better grades if we had not been in a group.
I would have learned more if I had not been in a group.

Peer Support: Helping

I helped other people in my group.
Other people in my group helped me.
I could always find someone in my group who would help me if I needed it.

Peer Support: Caring

The kids in my group don't care if I do well or not.
The kids in my group care about me.

The kids in this class care about me.
I like the people in my group.

SCALE: Learning Environment Inventory (LEI)

1. Members of the class do favors for one another.
2. The class has students with many different interests.
3. Students who break the rules are penalized.
4. The pace of the class is rushed.
5. The books and equipment students need or want are easily available to them in the classroom.

6. There is constant bickering among class members.
7. The class knows exactly what it has to get done.
8. The better students' questions are more sympathetically answered than those of the average students.
9. The work of the class is difficult.
10. Failure of the class would mean little to individual members.

11. Class decisions tend to be made by all the students.
12. Certain students work only with their close friends.
13. The students enjoy their class work.
14. There are long periods during which the class does nothing.
15. Most students want their work to be better than their friends' work.

16. A student has the chance to get to know all other students in the class.
17. Interests vary greatly within the group.
18. The class has rules to guide its activities.
19. The class has plenty of time to cover the prescribed amount of work.
20. A good collection of books and magazines is available in the classroom for students to use.

21. Certain students have no respect for other students.
22. The objectives of the class are not clearly recognized.
23. Every member of the class enjoys the same privileges.
24. Students are constantly challenged.
25. Students don't care about the future of the class as a group.

26. Decisions affecting the class tend to be made democratically.
27. Students cooperate equally well with all class members,
28. Personal dissatisfaction with the class is too small to be a problem.
29. The work of the class is frequently interrupted when some students have nothing to do.
30. Students compete to see who can do the best work.

31. Members of the class are personal friends.
32. Some students are interested in completely different things than other students.
33. Students are asked to follow strict rules.
34. Students do not have to hurry to finish their work.
35. The students would be proud to show the classroom to a visitor.

36. There are tensions among certain groups of students that tend to interfere with class activities.
37. Students have little idea of what the class is attempting to accomplish.
38. The better students are granted special privileges.
39. The subject studied requires no particular aptitude on the part of the students. 40. Members of the class don't care what the class does.

41. Certain students have more influence on the class than others.
42. Some students refuse to mix with the rest of the class.
43. Many students are dissatisfied with much that the class does.
44. The class is well organized.
45. A few of the class members always try to do better than the others.

46. All students know each other very well.
47. Class members tend to pursue different kinds of problems.
48. The class is rather informal and few rules are imposed.
49. There is little time for day-dreaming.
50. The room is bright and comfortable.

51. Certain students impose their wishes on the whole class.
52. The objectives of the class are specific.
53. Only the good students are given special projects.
54. Students in the class tend to find the work hard to do.
55. Students share a common concern for the success of the class.

56. Certain students impose their wishes on the whole class.
57. Some groups of students work together regardless of what the rest of the class is doing.
58. There is considerable dissatisfaction with the work of the class.
59. The class is disorganized.
60. Students feel left out unless they compete with their classmates.

61. Students are not in close enough contact to develop likes or dislikes for one another.
62. The class divides its efforts among several purposes.
63. There is a recognized right and wrong way of going about class activities.

64. The class members feel rushed to finish their work.
65. There are displays around the room.

66.Certain students don't like other students.
67. Each student knows the goal of the course.
68. The class is controlled by the actions of a few members who are favored.
69. The subject presentation is too elementary for many students.
70. Most students sincerely want the class to be a success.

71. Each member of the class has as much influence as any other member.
72. Certain groups of friends tend to sit together.
73. The members look forward to coming to class meetings.
74. The class is well organized and efficient.
75. Most students cooperate rather than compete with one another.

76. The class is made up of individuals who do not know each other well.
77. The class is working toward many different goals.
78. All classroom procedures are well established.
79. The class has difficulty keeping up with its assigned work.
80. The classroom is too crowded.

81. Certain students are considered uncooperative.
82. The class realizes exactly how much work it is required to do.
83. Students who have past histories of being discipline problems are discriminated against.
84. Most students consider the subject-matter easy.
85. Failure of the class would mean nothing to most members.

86. What the class does is determined by all the students.
87. Most students cooperate equally with other class members.
88. After the class, the students have a sense of satisfaction.
89. Many class members are confused during class meetings.
90. There is much competition in the class.

91. Each student knows the other members of the class by their first names.
92. Different students vary a great deal regarding which aspects of the class they are interested in.
93. There is a set of rules for the students to follow.
94. The course material is covered quickly.
95. There is enough room for both individual and group work.

96. There is an undercurrent of feeling among students that tends to pull the class apart.
97. Each student in the class has a clear idea of the class goals.

98. Certain students are favored more than the rest.
99. Many students in the school would have difficulty doing the advanced work in the class.
100. Students have great concern for the progress of the class.

101. A few members of the class have much greater influence than the other members.
102. Certain students stick together is small groups.
103. Students are well-satisfied with the work of the class.
104. There is a great deal of confusion during class meetings.
105. Students seldom compete with one another.

Items fall under the following scales:

Cohesiveness: 1, 16, 31, 46, 61, 76, 91
Diversity: 2, 17, 32, 47, 62, 77, 92
Formality: 3, 18, 33, 48, 63, 78, 93
Speed: 4, 19, 334, 49, 64, 79, 94
Material Environment: 5, 20, 35, 50, 65, 80, 95
Friction: 6, 21, 36, 51, 66, 81, 96
Goal Direction: 7, 22, 37, 52, 67, 82, 97
Favouritism: 8, 23, 38, 53, 68, 83, 98
Difficulty: 9, 24, 39, 54, 69, 84, 99
Apathy: 10, 25, 40, 55, 70, 85, 100
Democracy: 11, 26, 41, 56, 71, 86, 101
Cliqueness: 12, 27, 42, 57, 72, 87, 102
Satisfaction: 13, 28, 43, 58, 73, 88, 103
Disorganization: 14, 29, 44, 59, 74, 89, 104
Competitiveness: 15, 30, 45, 60, 75, 90, 105

SCALE: Class Environment Checklist

1. Certain groups of students like ti sit next to each other.
2. Students are very interested in the class's learning progress.
3. Class is composed of students who do knot know one another.
4. The students are satisfied with the biology lessons.
5. In the classroom, the students get along well together.
6. Students are not interested in what is going on in the lessons.
7. Students in the class very rarely compete.
8. Special projects are given to only good students.
9. There is friction among classmates.
10.It is important to study biology in order to understand nature.
11.Some students are preferred over other students.

12.Most of the students do not care if their classmates fail.
13.Students found biology studies to be difficult.
14.There is not enough interaction among students for sympathy or nonsympathy relations to develop.
15.I would take biology even if it were only an elective course.
16.In biology, we discuss a variety of problems that are related to daily issues.
17.Students do not care about the friendship situation in the classroom.
18.There is great competition among students for high achievement.
19.During a biology lesson, the teacher progresses according to the good students' rate of understanding.
20.I like to study biology.
21.The better students in the class get special privileges.
22.The classroom is well organized and the teaching techniques are effective.
23.I prefer not to study biology.
24.In a biology period, most of the students cooperate and do not compete with one another.
25.Learning about biology is worthwhile for my future goals.
26.There is mutual help in learning among the students.
27.In biology lessons, some students always try to be more successful than their friends.
28.Students show a willingness to cooperate with each of their friends in the class.
29.Most of the students in the class know each other.
30.The rate of instruction in the class is too fast.
31.Most of the students cooperate with each other without discrimination.
32.There is competition among students as to who can do better job in biology.
33.Tension in the classroom contributes to separation among classmates.
34.What happens in a biology period is determined by a small number of students who are the teacher's favorites.
35.The students care if the class does not succeed.
36.Some students do not honour others.
37.In biology lessons, students have difficulty keeping up with the learning materials.
38.Each person in the class has an opportunity to get to know the other students.
39.There are students who are not willing to listen to what their friends are saying during a classroom discussion.
40.Some students tend to raise different problems that relate to the topic under discussion.
41.Most of the students want their work to be better than others.
42.Biology is the most important subject studied in school.

SCALE: Group Cohesiveness Scale

1. To what degree do you feel that you were included by the group in the group's activities?

2. How attractive did you find the activities in which you participated as a member of your group?

3. If most of the members of your group decided to dissolve the group by leaving, would you try to dissuade them?

4. If you were asked to participate in another project, would you like to be with the same people again?

5. How well did you like the group you were in?

6. Did you feel that working with a group enabled you to attain your personal goals?

7. Did you have feelings of *belongingness* with this group?

8. How positive were your feelings about the group with which you worked?

SCALE: Science Activity Questionnaire

1. The work made me want to find out more about the topic.

2. I felt involved in my work

3. I wish we had more time to spend on biology.

4. I wanted to learn as much as possible.

5. I wanted to work with my friends.

6. It was important to me that the teacher thought I did a good job.

7. I wanted to do as little as possible.

8. I wanted to find out something new.

9. I wanted to talk to others about the work.

10. It was important to me to do better than other students.

11. I just wanted to do what I was supposed to and get it done.

12. It was important to me that I really understood the work.

13. I wanted to help others with their work.

14. I wanted the others to think I was smart.

15. I wanted to do things as easily as possible so I would not have to work very hard.

SCALE: Goal Orientation

Mastery Scale: Examples of the 19 items in this scale

In this class:
The teacher makes sure I understand the work.
The teacher pays attention to whether I am improving.
Students are given the chance to correct mistakes.
The teacher wants us to try new things.
Making mistakes is part of learning
I work hard to learn.

Performance Scale: Example of the 15 items in this scale.

Students want to know how others score on assignments.
I really don't like to make mistakes.
Only a few students can get top marks.
I work hard to get a high grade.
Students feel bad when they do not do as well as others.

SCALE: Group Climate Questionnaire

The members liked and cared about each other. *Cared*

The members felt what was happening was important and there was a sense of participation. *Participated*

The members tried to understand why they do the things they do, tried to reason it out. *Reasoned*

The members challenged and confronted each other in their efforts to sort things out. *Confronted*

The members revealed sensitive personal information or feelings. *Revealed*

The members appeared to do things the way they thought would be acceptable to the group. *Normative*

The members seemed tense and anxious. *Anxious*

There was friction and anger between the members. *Angry*

The members avoided looking at important issues going on between themselves. *Avoided*

The members depended upon the group leader(s) for direction. *Depended*

The members were distant and withdrawn from each other. *Withdrawn*

The members distrusted and rejected each other. *Rejected*

Scale: Classroom Environment Scale (Form R)

True or False statements

1. Students put a lot of energy into what they do here.
2. Students in this class get to know each other really well.
3. This teacher spends very little time just talking with students.
4. Almost all class time is spent on the lesson of the day.
5. Students don't feel pressured to compete here.
6. This is a well organized class.
7. There is a clear set of rules for students to follow.
8. There are very few rules to follow.
9. New ideas are always being tried out here.
10. Students daydream a lot in this class.
11. Students in this class aren't very interested in getting to know other students.
12. The teacher takes a personal interest in students.
13. Students are expected to stick to classwork in this class.
14. Students try hard to get the best grade.
15. Students are almost always quiet in this class.
16. Rules in this class seem to change a lot.
17. If a students breaks a rule in this class, he's sure to get in trouble.

18.What students do in class is very different on different days.
19.Students are often "clock-watching" in this class.
20.A lot of friendships have been made in this class.
21.The teacher is more like a friend than an authority.
22.We often spend more time discussing outside student activities than class-related material.
23.Some students always try to see who can answer questions first.
24.Students fool around a lot in this class.
25.The teacher explains what will happen if a student breaks a rule.
26.The teacher is very strict.
27.New and different ways of teaching are not tried very often in class.
28.Most students in this class really pay attention to what the teacher is saying.
29.It's easy to get a group together for a project.
30.The teacher goes out of his way to help students.
31.Getting certain amount of classwork done is very important in this class.
32.Students don't compete with each other here.
33.This class is often in an uproar.
34.The teacher explains what the rules are.
35.Students can get in trouble with the teacher for talking when they're not supposed to.
36. The teacher likes students to try unusual projects.
37.Very few students take part in class discussions or activities.
38.Students enjoy working together on projects in this class.
39.Sometimes the teacher embarrasses students for not knowing the right answer.
40.Students don't do much work in this class.
41.A student's grade is lowered if he gets homework in late.
42.The teacher hardly ever has to tell students to get back in their seats.
43.The teacher makes a point of sticking to the rules he's made.
44.Students don't always have to stick to rules in this class.
45.Students have very little to say about how class time is spent.
46.A lot of students "doodle" or pass notes.
47.Students enjoy helping each other with homework.
48.This teacher "talks down" to students.
49.We usually do as much as we set out to do.
50.Grades are not very important in this class.
51.The teacher often has to tell students to calm down.
52.Whether or not students can get away with something depends on how the teacher is feeling that day.
53.Students get in trouble if they're not in their seats when the class is supposed to start.
54.The teacher thinks up unusual projects for students to do.
55.Students sometimes present something they've worked on to the class.

56.Students don't have much of a chance to get to know each other in this class.
57.If students want to talk about something this teacher will find time to do it.
58.If a student misses class for a couple of days, it takes some effort to catch up.
59.Students here don't care about what grades the other students are getting.
60.Assignments are usually clear so everyone knows what to do.
61.There are set ways of working on things.
62.It's easier to get in trouble here than in a lot of other classes.
63.Students are expected to follow set rules in doing their work.
64.A lot of students seem to be only half awake during this class.
65.It takes a long time to get to know everybody by his first name in this class.
66.This teacher wants to know what students themselves want to learn about.
67.This teacher often takes time out from the lesson plan to talk about things.
68.Students have to work for a good grade in this class.
69.This class hardly ever starts on time.
70.In the first few weeks the teacher explained the rules about what students could and could not do in this class.
71.The teacher will put up with a good deal.
72.Students can choose where they sit.
73.Students sometimes do extra work on their own in the class.
74.There are groups of students who don't get along in class.
75.This teacher does not trust students.
76.This class is more a social hour than a place to learn something.
77.Sometimes the class breaks up into groups to compete with each other.
78.Activities in this class are clearly and carefully planned.
79.Students aren't always sure if something is against the rules or not.
80.The teacher will kick a student out of class if he acts up.
81.Students do the same kind of homework almost every day.
82.Students really enjoy this class.
83.Some students in this class don't like each other.
84.Students have to watch what they say in class.
85.The teacher sticks to classwork and doesn't get sidetracked.
86.Students usually pass even if they don't do much.
87.Students don't interrupt the teacher when he's talking.
88.The teacher is consistent in dealing with students who break the rules.
89.When the teacher makes a rule, he means it.
90.In this class, students are allowed to make up their own projects.

SCALE: College and University Classroom Environment Inventory (CUCEI)

1. The instructor considers students' feelings.
2. The instructor talks rather than listens.
3. The class is made up of individuals who do not know each other well.
4. The students look forward to coming to classes.
5. Students know exactly what has to be done in our class.
6. New ideas are seldom tried out in this class.
7. All students in the class are expected to do the same work, in the same way and in the same time.
8. The instructor talks individually with students.
9. Students put effort into what they do in classes.
10. Each student knows the other members of the class by their first names.
11. Students are dissatisfied with what is done in the class.
12. Getting a certain amount of work done is important in this class.
13. New and different ways of teaching are seldom used in this class.
14. Students are generally allowed to work at their own pace.
15. The instructor goes out of his/her way to help students.
16. Students "clockwatch" in this class.
17. Friendships are made among students in this class.
18. After the class the students have a sense of satisfaction.
19. The group often gets sidetracked instead of sticking to the point.
20. The instructor thinks up innovative activities for students to do.
21. Students have a say in how class time is spent.
22. The helps each student who is having trouble with the work.
23. Students in this class pay attention to what others are saying.
24. Students don't have much chance to get to know each other in this class.
25. Classes are a waste of time.
26. This is a disorganized class.
27. Teaching approaches in this class are characterized by innovation and variety.
28. Students are allowed to choose activities and how they will work.
29. The instructor seldom moves around the classroom to talk with students.
30. Students seldom present their work to the class.
31. It takes a long time to get to know everybody by his/her first name in this class.
32. Classes are boring.
33. Class assignments are clear so everyone knows what to do.
34. The seating in this class is arranged in the same way each week.
35. Teaching approaches allow students to proceed at their own pace.
36. The instructor isn't interested in students' problems.
37. There are opportunities for students to express opinions in this class.
38. Students in this class get to know each other well.

39. Students enjoy going to this class.
40. This class seldom starts on time.
41. The instructor often thinks of unusual class activities.
42. There is little opportunity for a student to pursue his/her particular interest in this class.
43. The instructor is unfriendly and inconsiderate towards students.
44. The instructor dominates class discussions.
45. Students in this class aren't very interested in getting to know other students.
46. Classes are interesting.
47. Activities in this class are clearly and carefully planned.
48. Students seem to do the same type of activities every class.
49. It is the instructor who decides what will be done in our class.

SCALE: Minnesota School Attitude Survey

1. I have to hurry to finish my work in school.
2. My teachers care about how much I learn.
3. My teachers like me the way I am.
4. I like to have other students help me learn.
5. My teachers grade my work fairly.
6. I would rather work with other students than by myself.
7. I do school work to make my teachers happy.
8. I do school work to make my parents happy.
9. I do school work to keep my teachers from getting mad at me.
10. I do school work because it is interesting.
11. I do school work so other students will like me.
12. I do school work because it is fun.
13. My teachers are interested in what I have to say.
14. My friends want to do better work than I do.
15. I like to be told exactly what to do in class.
16. My teachers care about my feelings.
17. I like to learn in school.
18. I like to do better work than my friends.
19. My teachers like to help me learn.
20. I am just as important in the school as any other student.
21. Some of my teachers understand me pretty well.
22. My teachers give me too much work to do.
23. I am doing a good job of learning in school.
24. I feel I am part of what is going on in school.
25. My teachers like me as much as they like other students.
26. I wish there were more rules in school.
27. Work in school is often hard for me.

28. I like to study what the teacher wants me to.
29. I like to get better grades than other students do.
30. My teachers think it is important to be my friend.
31. I have many questions I do not get to ask.
32. I like to help other students learn.
33. I like to have the teacher see my work.
34. I do not learn well if I am given a lot of free time.
35. My teachers like to see my work.
36. Other students like me.
37. I get as much of a chance as other students to do special things.
38. My grades in school really show how much I know.
39. My teachers are fair in making me follow rules.
40. I feel that school is preparing me for my life's work.

Appendix 2

Statements Generated From Informal Interviews With Students

1. I understand the material better when I work in a group.

2. I get higher grades when I work in a group than when I work by myself.

3. I prefer to choose the students I work with.

4. I do not think a group grade is fair.

5. Teachers expect more work from students when they work in groups.

6. Other students expect me to do most of the work when I work in groups.

7. I do not feel comfortable working with members of the opposite sex.

8. I like working with students who have similar goals to me.

9. I like working with students from other ethnic groups.

10. I learn better when I work alone.

11. Working with other students slows me down.

12. I enjoy the material more when I work wit other students in the group.

13. I like receiving information from the teacher even though I am working in a group.

14. I do not like having to rely on other students when my school work is concerned.

15. The content is easier when I learn it in a group.

Appendix 3

Positive/Negative Form

STUDENT REACTIONS TO SMALL GROUP WORK

DIRECTIONS: Most students, at one time or another, have worked with other students in the classroom to learn academic material and to complete group assignments and group projects. In small group work three to six students work together towards a common goal and each member is responsible for participating and contributing fully and equally to the process and product.
Think back on these experiences and describe what you liked the best and what you liked the least about working in groups.
Try to be as specific as possible:

Example: I understood the material better when I worked in a group.
I did not like the students in my group because.....

LIST TEN (10) POSITIVE ASPECTS OF WORKING IN GROUPS:

LIST TEN (10) NEGATIVE ASPECTS OF WORKING IN GROUPS:

Appendix 4

Student Comments Generated From The Positive/Negative Form

Positive Aspects of Working in Groups:

-work load is cut down
-understand material better
-people help you improve
-more and better ideas
-more organized
-more creative
-share opinions
-your work may result better
-appreciate others work
-learn to work with others
-helps you understand better
-less work to do
-help each other
-more creative work
-appreciate others work
-learn to work with others
-improves working habits
-helps yourself and others
-less work
-understood the material better
-like working with friends
-less work but usually a good mark
-less homework
-many opinions to work with
-become closer with the people in the group
-learn to work with people you don't imagine
-understand the material better
-improves material
-improves working habits
-making them do the work for you
-get more opinions
-can correct vocabulary and spelling
-There are some things that I don't understand and the other members of the group help me
-I help the other members with what I am good at
-work takes less time
-work is often more creative because each has a different opinion and point

of view to contribute
-you can get more work done in a smaller time
-more variety and creativity (input)
-socialize
-brainstorming
-great understanding
-time flies
-the help given may clarify something to me
-better quality of work if in a good group of workers
-get to relate to people in a serious matter.
-more ideas
-better ideas
-better work
-more organized
-more creative work
-people help you improve
-understand the material better
-less work to do
-I saw things (points) that I wouldn't have noticed before
-the workload is usually less
-more creative if everyone participates
-if you don't understand the work someone can explain it
-you have less work to do
-you can talk to people during class
-improve your working habits
-take in new and other information
-understand material
-you receive opinions on work
-more organization
-more new ideas
-become better friends with others
-learn to work better with many people
-understand better when in a group
-sometimes I like the people I 'm with
-less work to do
-help each other when work not understood
-work is more creative because of different opinions
-get to appreciate others work
-you can converse with other members of the group in class
-you do not have to work alone
-work is easier
-less work to go around
-makes work easier
-if you need help you can get it

-makes work fun
-you can come up with more ideas
-you do not have to do as much work
-more work done in less time
-learning things you do not know
-more variety and creativity
-more opinions
-appreciate others work
-learn to work with others
-learn better work habits
-help others
-new perspectives
-sharing ideas
-hearing criticisms
-getting help
-corrections
-different

Negative Aspects of Working in Groups:

-hard to continue work at home
-frequent disagreements
-you have to deal with a less intelligent person's stupidity
-may not like the people
-may have different opinions causing disagreements
-others may work faster/slower
-the others may be lazy therefore making me do more work
-don't work well with some people because we do not agree on the same ideas
-some do more work, some do less
-people going to fast
-people going to slow
-can not concentrate
-too much information to work with
-takes up valuable time
-not co-operative
-too much socializing
-if only one person does the work
-it may go slower
-your work isn't as original
-disputes on ideas
-too many people talking at once
-too noisy

-difficult to concentrate
-work is limited
-difference of opinions
-not all ideas are accepted
-too much info
-repetitions in ideas
-criticism
-disputes on ideas
-takes more time
-difference of opinions
-not all ideas are accepted
-too loud/noisy
-too many people talk at once
-lower mark
-bad partners
-stealing each others ideas
-conflict/dispute on topic
-work is limited
-takes more time
-difference of opinions
-not all ideas are acceptable to your partner
-too loud therefore other people hear your ideas
-too many people talk at once
-slower
-talk too much
-go off the topic
-less concentration
-one person always does more work than the other
-you hardly ever end up working anyway
-some groups are much stronger than others
-the stronger person usually has to work with weaker ones
-most of the time you could do a better job by yourself
-one person doesn't work
-teacher doesn't know who does what
-stealing work/ideas
-might not like people in the group
-don't work well with certain people
-work might not be divided equally
-arguments
-people do not listen to each other
-don't work well with certain people
-don't agree in working matters with others
-one person may end up doing all the work
-a person may not respect the opinions of others

-if I work with someone lazy I do most of the work
-if all of us do not do our best the group mark is worse than an individual mark
-if I am not friendly with someone (enemies) and I have to work with them it is very hard
-if one group member doesn't understand we must repeat ourselves over and over
-I hate working with assigned people and being forced to get along with them
-they are not co-operative
-they don't express their feelings and thoughts
-they don't all work as much, others will do all the work for them
-don't work well with others
-to much gossiping that not a lot of work gets done
-it takes a long time to complete
-unable to work with girls (can't concentrate)
-some members don't work and leave the responsibility to the others
-sometimes one group doesn't get along with each other
-sometimes I have a very definite opinion and the others don't
-people might use your work without input from themselves
-sometimes it is more efficient to work alone
-arguments
-do not get along with people in group
-not listening to each other
-working with people who do not want to work
-work not divided equally
-sometimes I end up doing most of the work
-everyone argues
-not working with people you want(they might help you work better-you click)
-not co-operative
-don't work well
-they do not express opinions thought
-aren't friendly
-aren't open for criticism
-people going at different speeds
-too much gossip going on
-sometimes I don't like the people I' with
-I don't like their opinions
-I don't like their ideas
-some don't work and let the others do the work
-work with only people who don't understand
-you might get stuck with all work
-might get someone you do not like

-trouble getting together
-might have different ideas
-partner might forget to do something important
-work with stupid people
-work with people you do not like
-less work done because you talk
-a lot of copying
-people do more work than others
-getting criticized
-might get stuck with all the work
-might have different ideas
-might speak different language
-partner might forget to do the work
-getting criticised
-incompatibility with others
-if only one person works
-difference in opinions
-marks divided
-marks could suffer
-it may go slower
-don't like people in group
-get to know them too well (dislike)
-gives you a headache (talking too much)
-you often disagree with the other members
-one person ends up working harder and doing more work than the rest
-I like working alone
-people take credit for your work and you for their even if yours is much better than theirs
-you never get into the group you want
-I hate it
-fighting
-not agreeing on matters
-not helping each other
-not having a good time
-getting a failing grade
-everyone not sharing ideas

Appendix 5

Statements Generated From Student Comments From The Positive/Negative Form

1. My work is more creative when I work in a group.
2. I am able to share my ideas when I work in a group.
3. I do better work when I work in a group.
4. My work isn't as original when I work in a group.
5. We come up with more ideas when we work in groups.
6. I have less work to do when I work in a group.
7. The workload is usually less when we work in groups.
8. There is too much information to work with when we are in groups.
9. I understand the material better when I work in a group.
10. The work is easier when I work in a group.
11. I learn things that I do not know when I work in a group.
12. The work takes less time when I work in a group.
13. It takes a long time to complete the work when I work in a group.
14. I can get more work done in less time when I work in a group.
15. My work habits improve when I work in a group.
16. Students learn better work habits when they work with other students.
17. The work is more fun when I work in a group.
18. Students help each other learn when they work in groups.
19. I like helping students with the work when I am in a group.

20. If I don't understand the work someone can explain it to me when I work in a group.

21. I help the other group members with what I am good at.

22. It is difficult getting together to work in groups outside of class.

23. When working on group projects it is difficult to continue work at home.

24. Students learn to work with others when they work in groups.

25. I learn to work better with many people when I work in a group.

26. I like talking with my classmates when I work in a group.

27. You can converse with other members of the group in class.

28. I do not like working with students who are smarter than me.

29. When I work in a group I have to work with people who are less smarter than me.

30. When working in groups the stronger person usually has to work with the weaker ones.

31. Group members who understand the material go to fast for the rest of the members.

32. I do not like working with people who do not understand the material.

33. I end up doing all the work when I work in a group.

34. Some students do more work than others when they work in groups.

35. There is always one student in the group who does not want to work.

36. Students get credit for your work even though they did not contribute.

37. The work is divided equally when we work in groups.

38. I let the other students in the group to do all the work.

39. Students steal each others ideas when they work in groups.

40. The teacher doesn't know who did what when we work in a group.

41. When working in groups students learn to appreciate other student's work.

42. Students disagree with other group member's ideas.

43. Students do not respect the opinions of other students in the group

44. Students do not listen to each other when they work in groups.

45. I like it when students agree with my ideas.

46. I often agree with other students in order to avoid a fight.

47. Group members forget to do the work that there were assigned.

48. Students criticize each other when they work in groups.

49. When I work in a group I am forced to work with students that I do not like.

50. I never get to be in the group that I want.

52. When I work in a group I learn to work with other students.

53. It is important to like the members of your group.

54. I am unable to work with members of the opposite sex.

55. I get lower marks when I work in a group.

56. My marks improve when I work in a group.

57. Individual marks are higher than group marks.

58. When we work in groups too many people talk at once

59. Students make too much noise when they work in groups.

60. I can not concentrate when I work in a group.

61. Students have difficulty concentrating when they work in groups.

62. Students get off the topic when they work in groups.

63. Students spend too much time gossiping when they work in groups.

64. Students hardly end up doing any work because they talk with others.

65. I do not get my work done because I talk about other things with my group members.

Appendix 6

Definition of Categories

Teacher: T

Teacher is operationally defined as the individual in the classroom who is responsible for promoting knowledge and content comprehension, evaluating comprehension, providing support, monitoring and controlling student actions and behaviours.

Experimentation: T EX. Experimentation pertains to the teacher's teaching philosophy. The teacher's willingness to: a) try new ways of teaching; b) try new ideas and projects in the classroom; and c) willingness to deviate from whole-class presentation format.

Academic Support: T AS. Academic support is the help and support that students feel that the teacher is giving them in terms of their learning. The teacher is perceived as: a) caring how much the students understand and learn; b) being enthusiastic about helping students to learn; and c) genuinely interested in the student's academic improvement.

Personal Support: T PS. Personal support is the perception that the teacher genuinely cares for the students as individuals regardless of ability or status in the classroom. The teacher is perceived as: a) having a good rapport with the students (e.g., students feel comfortable to talk to the teacher about non-academic matters); b) caring about students feelings; and c) being able to take herself/himself out of an authoritarian role and being

able to come down to the students level.

Discipline: T DX. The discipline category pertains to the disciplinarian role that the teacher assumes in order to control the class. The teacher is seen as: a) making and explaining rules to the students; b) enforcing rules; and c) flexible (e.g., the range between strict and lenient).

Favouritism: T FV. Favoritism is the perception that the teacher favors or likes some students more than others. The teacher consistently: a) gives some students more privileges or better projects; b) pays more attention to a select few; c) allows some students to have more influence over the class; d) lets some students to get away with things which other students cannot; e) discriminates against students who have a reputation of being difficult; and f) praises some students more than others.

Class/School: CS

Class is operationally defined as: a) a room in a school in which classes are taught; and b) a course that is taught in a school or college. School is operationally defined as a place or institution where teaching and learning occurs.

Teacher Centered Rules: CS RC. There are a clear set of school and teacher rules that are imposed in the classroom. These rules are: a) communicated and explained to the students; b) enforced by the teacher; and c) are consistent.

Classroom Procedures/Organization: CS OR. The

procedures/organization category pertains to the procedures that are set up and followed in the classroom. The perception that: a) the activities are organized; b) the teaching method is structured and well planned.

Task Objectives/Goals: CS OJ. The degree to which the objectives or goals of the task or assignment are specific. The students have a clear understanding of: a) the steps involved to complete the assignment; b) the amount of work that is required; and c) the objectives of the task.

Student Centered Rules: CS DF. Situations in which students are involved in the decision-making in the classroom. The degree of input that all of the students have towards: a) the decisions that are made in the classroom; b) their assignments and projects; and c) seating arrangements.

Surroundings: CS SU. The physical surroundings of the classroom such as, space, lighting, equipment, resources etc.

Enjoyment: CS CE. Extent of student enjoyment or liking of school or a particular class (not content). Student enjoyment of the class or school is evident by: a) satisfaction with the work of the class; and b) students looking forward to coming class.

Content: C

Content is operationally defined as academic material, assignments, and projects which are part of an academic course.

Quality of Work: C BI. The quality of the work that is produced when working in groups in terms of originality, creativity, and quantity.

Amount of Work: C WL. The perception that there is more/less work to do when working in a group.

Pace: C PC. Extent to which class work is covered quickly. The degree to which students: a) rush to cover a prescribed amount of work; b) feel that the rate of instruction is too fast; and c) feel that working in groups takes more time than working alone.

Understanding: C BU. The perception that the content is easier to master when working in groups. The degree to which students feel that a) they learned more because they worked in groups; and b) that the content becomes easier to understand when working in groups.

Work Habits: C WH. The degree that work habits improve for example, organization and productivity.

Enjoyment: C WE. The degree of content enjoyment when working in groups. The perception that the content is more fun and more enjoyable when working in groups.

Self: M

Self is operationally defined as one's own person as distinct from all others. Items in this category assesses self-perceptions.

Personal Support: M PH. A student's self perception that the other classmates genuinely care for him/her. The extent to which a student feels that: a) he/she is liked by other students; b) other students care if he/she is absent from class; c) that other students care for his/her feelings; and d)

other students included him/her in the group activities and conversations.

Academic Support: M AH. The perception that other students care for a student's learning and academic success. The extent to which a student: a) likes to help other students learn; b) likes to receive help from other students; c) does school work to be liked by other students; and d) likes to share academic material and ideas.

Authority Figure: M AU. The degree to which a student strives to do well in school in order to seek approval and to please authority figures such as the teacher, principal, and parents. (Not to please other students or himself/herself.)

Compatibility: M NI. The extent to which a student feels that he/she is compatible with the other students. The student: a) likes the students in the class; b) wants to be friends with the other students; and c) wants to work with other students and not just a particular group of people (e.g., friends).

Competition: M OC. The extent to which a student feels that he/she is in competition with other students. The students: a) does not like other students to perform better than him/her; and b) desires to be better than other students.

Relying on Others: M ER. The extent to which a student likes: a) being responsible for the learning of other students; b) the fact that each student must contribute in order for the assignment to be completed; and c)

to find out what other students know and pool the information.

Individualistic: M AL. The extent to which a student prefers to work alone on academic tasks. A student's belief that when working alone: a) more and better learning takes place; b) it's less noisy and easier to concentrate; c) faster and more efficient; and d) produces a better end product.

Personal/ Academic Competence: M CT. A students's self-perception about social and academic competence. A student feels; A) confident in his/ her ability; b) confident that he/ she was a valuable member to the group; and c) satisfied with academic and social performance.

Positive Interdependence: M LF. The extent of a student's expenditure of effort and goal attainment. The student: a) feels involved in the work and wants to learn and do as much as possible; b) feels that it is important to understand the work; and c) achieves personal goals.

Evaluation: M EV. A student's self-perception that: a) he/she deserves the assigned grades; and b) that he/she worked hard and put in a lot effort to obtain a high grade.

Students: S

Is operationally defined as the other individuals in the classroom other than the teacher or oneself.

Academic Compatibility: S DS. The degree of friction between students because of disputes over ideas. The extent to which students: a)

bicker or fight because of conflicts over of ideas and point of views; b) impose their ideas and wishes on others; c) have different interests between themselves; d) respect the opinions of others; and e) compromise with other students.

Personal Compatibility: S IN. The extent to which students like and feel compatible with the other students. The students: a) like and care for the other students; b) want to be friends with the other students; c) want to work with other students and not just a particular of people; and d) have similar interests.

Academic Support: S HA. The academic support system that exists between students. The extent that students care for one another's learning and academic success. The extent to which students: a) like to help each other learn; b) think it is important to help each other learn; and c) care about the group's learning progress and academic success.

Personal Support: S HP. The degree of closeness or caring between the students. The extent that students : a) do favors for one another; b) have close and strong friendships; c) expose their true emotions to one another; and d) include each other in the activities and discussions.

Positive Interdependence: S FL. The degree of effort that students put into a group task and the extent that goals were attained. The extent that students in the group: a) contribute ideas; b) care what the other students are doing (apathy); c) have different interests; d) feel that they do

more than their share of the work; e) feel that other students expect them to do the work for them; f) feel that the work is divided equally; g) feel that students steal each others ideas; and h) feel that the teacher is unaware of who did the majority of the work.

Different Abilities: S DA. The extent to which students like to work with students who have similar ability or intelligence than them.

Interaction/Socializing: S SO. The extent that students like the opportunity to have academic and social conversations with other students. The extent that students: a) like to talk to one another; b) get to know each other's names; and c) get to know each other well.

Relying on Others: S RE. The extent that students like to depend on one another where their school work is concerned. The extent that students like: a) depending upon other students for leadership; b) relying on other students to do the assigned work; and c) having their individual success based on the success of the group.

Learning to Work with Others: S LW. The extent that students like to learn with other students. The extent that students: a) like to share materials to complete a task; b) exert equal influence on the group; c) do not discriminate against students; d) appreciate other works; and e) like to work with students other than their immediate friends.

Schedule Conflict: S SC. The extent to which getting together with group members outside of the class is a problem.

Appreciate Others Work: S AW. The extent that students learn to respect and appreciate the work of other students.

Competition: S CO. The extent to which students feel that they are in competition with other students. The students compete with one another over: a) who can get higher grades; b) who can produce better quality work; c) who can answer the questions first; and d) who can complete the task first.

Fairness of Grading System: S FG. The student's perception that the manner in which they were graded was fair and justified. The students feel that: a) students have to work hard for a high grade; b) students deserve the assigned grade; c) all students have the opportunity to receive a high grade; and d) fairness of group grading.

Appendix 7
Teacher Instruction Sheets

Dear Colleague,

There is growing interest in cooperative learning and it's benefits in the classroom. Cooperative learning is a set of instructional strategies that encourage students to share their skills and abilities with other members of the group in order to achieve a common goal. Cooperative learning groupwork is different from regular groupwork because it is more structured. Each member of the group is responsible for doing his/her own share of the work and the participation of each member is necessary for the group to be successful.

Several studies conclude that students who work in cooperative classrooms learn more, enjoy the content better and have more positive feelings towards their classmates and teachers. However, not all students enjoy working in cooperative groups. Common concerns that have been voiced from students who have experienced small group work are: a) fairness of evaluation; b) personality clashes with group members; c) doing more than their share of the work; and d) apathy of group members.

Our goal is to develop an attitudinal questionnaire which captures the wide range of concerns that students have about small group work. The information gleaned from this instrument will be used to improve student learning in groups and, particularly, the implementation of cooperative learning in the classroom.

We request the participation of your students to rate statements for relevancy to small group work and to answer a few background questions. We need students that are in grades 7 through 11. In addition, we request that teachers also rate the items and answer the teacher background questions.

Each individual will rate about sixty items. It should take less than half an hour to do so. We will explain and discuss the project with students afterwards. Of course, you and your students can elect not to complete the form. However, we would appreciate the cooperation of as many students and teachers as possible.

If you have any further questions concerning the study, please feel free to contact me at 1 (514) 848-2020 or Christine Kouros a graduate research assistant working on the project.

Thank you for your time and cooperation.
Sincerely,

Philip C. Abrami, Ph.D., Professor & Director
Centre for the Study of Classroom Processes

SMALL GROUP WORK ATTITUDE QUESTIONNAIRE STUDY

Please fill in the information below and mail it to the Centre (see address below).

NAME (please print)_____

POSITION (please print)_____

SCHOOL_____

ADDRESS_____

_____

TELEPHONE_____

SUBJECT AREA_____

GRADE LEVEL YOU TEACH _____

_____ I WOULD LIKE TO PARTICIPATE IN THIS STUDY BY HAVING MY STUDENTS AS WELL AS MYSELF RATE ITEMS FOR RELEVANCY TO SMALL GROUP WORK.

_____ THE STUDENTS I TEACH ARE TOO YOUNG BUT I WOULD LIKE TO RATE THE ITEMS FOR RELEVANCY TO SMALL GROUP WORK.

_____ I WOULD NOT LIKE TO PARTICIPATE IN THIS STUDY.

Centre for the Study of Classroom Processes
Concordia University
LB 581
1455 de Maisonneuve Blvd. West
Montreal, Quebec
Canada H3G 1M8

INFORMATION REQUIRED ON THE ANSWER SHEET:

Once all the answer sheets are handed out, the only information that the students should fill in on the answer sheet is GRADE.

They should NOT fill in NAME (the color of the questionnaire is filled in here. We do not want their names), SEX (that 's question 1 on the form), BIRTHDATE, or SPECIAL CODES.

Each answer sheet has all ready the color of the form filled in as well as an identification number. It does not matter which id number is given to the student just as long as the color of the form matches the color that is indicated on the answer sheet.

Example of the identification number: 50111

The first three digits (501) refers to the id number of the student.
The fourth digit refers to the color of the questionnaire (e.g 1=pink, 2=yellow, 3=green, 4=beige, 5=orange).
The fifth and final digit (it is always "1") distinguishes this data from the data that was collected for my thesis.

The id numbers for the next students are 50221 (yellow), 50331 (green), 50441 (beige), 50551 (orange), 50611 (pink), 50721 (yellow) etc.

*** Id numbers that start with 501-799 are for STUDENTS

*** Id numbers that start with 401-500 are for TEACHERS (Make sure that the teachers are given these answer sheets not the students).

INSTRUCTIONS FOR FILLING OUT THE FORM:

1. Please tell them to use an HB pencil (the computer will not read ink or other types of lead).

2. They are to fill in only one answer per question (they cannot fill in two circles).

3. If they change their answer they must make sure that they erase their previous answer completely.

4. They should put the answer for question 1 at the corresponding place on the

answer sheet (e.g., 1 on the answer sheet). This sounds self explanatory but some participants put their responses in the wrong place thus ruining the data.

5. They should fill in the circle on the answer sheet completely without going over the lines. If you can, draw on the board the right and wrong ways of filling in the answer sheet.

6. They should not fold or rip the answer sheets.

7. They should not write anything on the questionnaire (answers should only be filled out on the answer sheet).

HOW TO ADMINISTER THE QUESTIONNAIRE:

1.Please read page 1 and the definition of small group work (on top of page 2) out loud to the students.

2. Tell them to fill out the nine background questions on the answer sheet.

3. Tell them to put their pencils down when they are finished answering the 9 questions. They are not to go on to the next section.

4. When all the students are ready, read the instructions on page 4 out loud. Remind the students that they should rate the items for relevancy to small group work not if it applies to them personally.

5. Ask students if they have any questions. If they have no questions tell them to proceed until they have completed the form.

6. This task should take less than half an hour to do so.

INSTRUCTIONS FOR FILLING OUT THE FORM:

1. Please use an HB pencil (the computer will not read ink or other types of lead).

2. You are to fill in only one answer per question.

3. If you change your answer you must make sure that you erase your previous answer completely.

4. You should put the answer for question 1 at the corresponding place on the answer sheet (e.g 1 on the answer sheet).

5. You should fill in the circle on the answer sheet completely without going over the lines.

6. Please be careful not to fold or rip the answer sheet.

INFORMATION REQUIRED ON THE ANSWER SHEET:

The only information that you should fill in on the answer sheet is the grade level you teach at. Please fill in this information on the horizontal strip that has GRADE or EDUC printed on top.

(If you teach more than one level, fill in the grade that you teach the most classes in).

You should NOT fill in NAME (the color of the questionnaire is filled in here. We do not want your names), SEX (that 's question 1 on the form), BIRTHDATE, or SPECIAL CODES

Each answer sheet has all ready the color of the form filled in as well as an identification number. Ex: 35111

(Please make sure that the first three digits of your ID number begins with a number between 351 - 500.

Appendix 8

Forty-One Items Selected For The New Instrument
(Items that have an * next to them were items generated in this study)

*1. I am able to share my ideas when I work in a group.

*2. The work is more fun when I work in a group.

*3. It takes longer to complete the assignment when I work in a group.

*4. I let the other students in the group do all the work.

*5. Students learn better work habits when they work in a group.

*6. When I work in a group I am forced to work with students that I do not like.

*7. I understand the material better when I work in a group.

8. When working in groups everyone's ideas are needed if we are going to be successful.

*9. When working in groups you can talk with your group members.

*10. I can get more work done in less time when I work in a group.

11. Students in my group like to help me learn.

12. There are opportunities for students to express opinions in a group.

13. When working in groups we cannot complete an assignment unless everyone contributes.

*14. I like working with students who understand the material.

*15. We come up with more ideas when we work in a group.

16. I learn when I teach other students.

17. I would rather work alone than argue.

18. Friendships are made among group members.

*19. I prefer to choose the students I work with.

20. Students should work together to help each other learn.

21. There is opportunity for students to pursue their particular interests in a group.

22. I feel I am part of what is going on in the group.

23. Working in groups makes me want to find out more about the topic.

24. I am as important as any other student in the group.

*25. I learn new things when I work in a group.

*26. My work habits improve when I work in a group.

*27. When working in groups stronger students have to work with the weaker ones.

28. When working in groups I want to work with my friends.

29. Getting the work done is important in a group.

30. When working in groups it bothers me if I have to do more work than other students.

31. When working in groups our job is done when everyone has finished the assignment.

*32. I do not get my work done because I socialize with my group members.

33. When working in groups a lot of friendships are made.

*34. When working in groups students respect the opinions of the other members.

*35. If I do not understand the work my group members can explain it to me.

36. When working in groups students help each other learn.

*37. I learn to work with different types of people when I work in a group.

38. I do better work when I work alone.

39. Members of the group do favors for one another.

*40. When working in groups students learn to work with others.

*41. I like talking with my classmates when I work in a group.

Appendix 9
Student Pink Rating Form

ATTITUDE QUESTIONNAIRE DEVELOPMENT
STUDENT FORM

The following questionnaire is part of an Educational Studies Master's thesis which is being conducted at Concordia University's Centre for the Study of Classroom Processes. The purpose of this study is to develop a questionnaire to assess student attitudes toward small group work. The final version of this questionnaire will be used to predict how student attitudes towards small group work affect learning.

Your cooperation in completing this questionnaire is greatly appreciated. Rate the items as honestly as possible. This is **not a test**; there are no right or wrong answers. The information will be kept **confidential**. Your answers will **not affect your grades** in any way.

Thank you for your cooperation.

Christina Kouros, M. A. Candidate

Dr. Philip C. Abrami, Advisor

Please do not write in this booklet.
Place your answers on the special answers sheets.
Do not leave answers blank.
If you are uncertain make your best guess.

DEFINITION OF SMALL GROUP WORK

Small group work occurs when 2 to 6 students work together to learn new material, to review material, and to complete assignments and projects which are part of a course. Characteristics of small group work may include: discussing the material, asking each other questions, helping each other learn, striving to obtain a group goal, working on different aspects of the task, taking on different roles (e.g., reporter, recorder, encourager, etc.) and sharing resources (e.g., papers, calculators, etc.). Finally, students are sometimes assigned a group grade based on their group work.

PART I. BACKGROUND INFORMATION:

1. Your sex:
   [1] Male
   [2] Female

2. Average grade you expect this year:
   [1] 90-99
   [2] 80-89
   [3] 70-79
   [4] 60-69
   [5] 59 and below

3. Average grade you received last year:
   [1] 90-99
   [2] 80-89
   [3] 70-79
   [4] 60-69
   [5] 59 and below

4. At present, how often do you work in groups at school?
   [1] Always
   [2] Frequently
   [3] Sometimes
   [4] Seldom
   [5] Never

5. Do you enjoy working in groups?
   [1] Always
   [2] Most of the time
   [3] Sometimes
   [4] Very little of the time
   [5] Not at all

6. How often should students help each other learn in the classroom?
   [1] Always
   [2] Most of the time
   [3] Sometimes
   [4] Very few times
   [5] Never

7 During a typical class period how much time do you spend working in groups?
   [1] All the time
   [2] More than half the time
   [3] Half the time
   [4] Less than half the time
   [5] Never

8. How often would you like to work in groups in the future?
   [1] Always
   [2] Most of the time
   [3] Sometimes
   [4] Very few times
   [5] Never

9. Under which condition do you think you learn better:
   [1] Working alone
   [2] Competing with other students
   [3] Working with other students

Please go on to the next page.

PART II. RATING THE ITEMS

In the first step of questionnaire development a large number of statements were prepared. In the second step a subset of items were selected for further study. The third step, which you are participating in, is to **select the best items which capture the experience of working in small groups**. To do so you are to rate each item for relevancy to small group work. The statements which students think are the most important will be included in the final scale.

INSTRUCTIONS:

Think of your experiences when working with other students in the classroom. Try to remember how you felt and what you thought when working in small groups. If you have **never** worked in a group, do the following task assuming what your reactions would be if you had worked cooperatively.

Your task is to rate each of the following statements for relevancy to small group work.
A relevant item is one that you think reflects an important feature of small group work.
In other words, a relevant feature is one that positively or negatively affects learning in a small group.

Examples of relevant statements: "When working in groups each student should participate."
"I do not like all the members in my group."
"It's fun working in groups."

Examples of irrelevant statements: "There are many windows in this classroom."
"In this class the teacher is always late."
"I do not like this textbook."

****

Use the following 5 point response scale to rate the statements:

RESPONSE SCALE:
1) Not at all relevant
2) Slightly relevant
3) Moderately relevant
4) Very relevant
5) Extremely relevant

In your opinion if a statement is really important to small group work rate it highly-as either ***very relevant*** or ***extremely relevant***. Black out number **4** or **5** on the answer sheet.
If the statement is somewhere between important and not important rate it as ***moderately relevant***. Black out number **3** on the answer sheet.
If the statement is not important rate it as ***not at all relevant*** or ***slightly relevant***. Black out number **1** or **2** on the answer sheet.

****

REMEMBER WHEN RATING THE STATEMENTS DO NOT:
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Do not rate the extent to which you like or dislike what is being expressed.

RESPONSE SCALE:

1) Not at all relevant
2) Slightly relevant
3) Moderately relevant
4) Very relevant
5) Extremely relevant

****

10. My work is more creative when I work in a group.

11. Students should work together to help each other learn.

12. Students care if their group members fail.

13. It is important to me that the teacher thinks I did a good job

14. In this class there are very few rules to follow.

15. If students want to talk about something this teacher will find time to do it.

16. The group members have plenty of time to cover the prescribed amount of work.

17. This classroom is bright and comfortable.

18. The students in my group care about my feelings.

19. I can not concentrate when I work in a group.

20. When working in groups, I prefer to choose the students I work with.

21. This class hardly ever starts on time.

22. It takes less time to complete the assignment when I work in a group.

23. In this class I deserve the grades I receive.

24. This teacher likes students to try unusual projects.

25. Students have difficulty concentrating when they work in groups.

26. In this class all classroom procedures are well established.

27. The students care if the class does not succeed.

28. In this class students aren't always sure if something is against the rules.

29. The class realizes exactly how much work it is required to do.

RESPONSE SCALE:
1) Not at all relevant
2) Slightly relevant
3) Moderately relevant
4) Very relevant
5) Extremely relevant

****

30. This teacher is more like a friend than an authority.

31. I care if students in the group are absent from school.

32. There is constant bickering among group members.

33. In this class I like to cooperate with other students.

34. Students in my group like to help me learn.

35. Being part of a group helped me learn.

36. This class knows exactly what it has to get done.

37. Each student in this class has a clear idea of the class goals.

38. Students are satisfied with the work of this class.

39. I would have learned more if I had not been in a group.

40. I understand the material better when I work in a group.

41. When we work together in small groups our grade depends on how much all members learn.

42. I like working with students who understand the material.

43. Students do the same kind of homework almost every day.

44. Many students in my group like me.

45. The members depend upon the group leader(s) for direction.

46. I do school work to make my teacher happy.

47. Some students refuse to mix with the rest of the class.

48. I never get to be in the group that I want.

RESPONSE SCALE:

1) Not at all relevant
2) Slightly relevant
3) Moderately relevant
4) Very relevant
5) Extremely relevant

****

49. When I work in a group I have to work with people who are less intelligent than me.

50. I'm learning when I teach other students in my group

51. When working in groups students reveal personal feelings.

52. This teacher goes out of his/her way to help students.

53. Whether or not students can get away with something depends on how the teacher is feeling that day.

54. Members of the group are personal friends.

55. I like this class.

56. I can get more work done in less time when I work in a group.

57. Students in the class very rarely compete.

58. In this class only a few students can get top marks.

59. In this class the books and equipment students need are easily available to them.

60. When working in groups students learn to appreciate other student's work.

61. Certain students impose their wishes on the whole class.

62. When we work together in small groups I have to find out what everyone else knows in order to do the assignment.

63. Sometimes I think the grading system in this class is not fair.

64 The group members feel rushed to finish their work.

65. This teacher thinks up unusual projects for students to do.

66. Certain students work only with their close friends.

67. When we work together in small groups everyone's ideas are needed if we are going to be successful.

Appendix 10

Student Yellow Rating Form

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4. At present, how often do you work in groups at school?
   [1] Always
   [2] Frequently
   [3] Sometimes
   [4] Seldom
   [5] Never

5. Do you enjoy working in groups?
   [1] Always
   [2] Most of the time
   [3] Sometimes
   [4] Very little of the time
   [5] Not at all

6. How often should students help each other learn in the classroom?
   [1] Always
   [2] Most of the time
   [3] Sometimes
   [4] Very few times
   [5] Never

7. During a typical class period how much time do you spend working in groups?
   [1] All the time
   [2] More than half the time
   [3] Half the time
   [4] Less than half the time
   [5] Never

8. How often would you like to work in groups in the future?
   [1] Always
   [2] Most of the time
   [3] Sometimes
   [4] Very few times
   [5] Never

9. Under which condition do you think you learn better:
   [1] Working alone
   [2] Competing with other students
   [3] Working with other students

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INSTRUCTIONS:

Think of your experiences when working with other students in the classroom. Try to remember how you felt and what you thought when working in small groups. If you have **never** worked in a group, do the following task assuming what your reactions would be if you had worked cooperatively.

Your task is to rate each of the following statements for relevancy to small group work.
A relevant item is one that you think reflects an important feature of small group work.
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Examples of relevant statements: "When working in groups each student should participate."
"I do not like all the members in my group."
"It's fun working in groups."

Examples of irrelevant statements: "There are many windows in this classroom."
"In this class the teacher is always late."
"I do not like this textbook."

****

Use the following 5 point response scale to rate the statements:

RESPONSE SCALE:
1) Not at all relevant
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3) Moderately relevant
4) Very relevant
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In your opinion if a statement is really important to small group work rate it highly-as either ***very relevant*** or ***extremely relevant***. Black out number **4** or **5** on the answer sheet.
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RESPONSE SCALE:

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2) Slightly relevant
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4) Very relevant
5) Extremely relevant

****

10. When working in groups we all receive the same grade.

11. I do a better job when I work by myself.

12. Students criticize each other when they work in groups.

13. It is important to me to do better than other students.

14. When working in groups I find it hard to speak my thoughts clearly.

15. I like to get help from my group members.

16. In this class my teacher cares about my feelings.

17. I am a good student.

18. When working in groups you can talk with your group members.

19. When I work in a group I am forced to work with students that I do not like.

20. I do school work to make my parents happy.

21. The better students' questions are more sympathetically answered than those of the average students.

22. I like working with group members who have similar goals to me.

23. When working in groups the pace of the class is rushed.

24. In this class students have very little to say about how class time is spent.

25. We often spend more time discussing outside student activities than class-related material.

26. In this class the teacher makes sure I understand the work.

27. In this class the teacher wants us to try new things.

28. Whenever I take a test I am afraid I will fail.

RESPONSE SCALE:

1) Not at all relevant
2) Slightly relevant
3) Moderately relevant
4) Very relevant
5) Extremely relevant

****

29. In this class everyone has an equal chance to be successful if they do their best.

30. When we work together in small groups we have to share materials in order to complete the assignment.

31. I like working alone.

32. I feel comfortable working with members of the opposite sex.

33. I often agree with my group members in order to avoid a fight.

34. I let the other students in the group to do all the work.

35. Many group members are confused during class meetings.

36. When working on group projects it is difficult to continue work at home.

37. It is more efficient to work alone.

38. I end up doing all the work when I work in a group.

39. When working in groups, students learn important things from each other.

40. I want students in my group to get good grades.

41. Students are proud to show this classroom to a visitor.

42. I'd be glad if I didn't have to go to school.

43. When I work in a group I learn to work with other students.

44. In this class decisions tend to be made by all the students.

45. There are students who are not willing to listen to what other group members are saying.

46. I help my group members with what I am good at.

47. I learn better when I work alone.

48. In this class students get the grades they deserve

RESPONSE SCALE:

1) Not at all relevant
2) Slightly relevant
3) Moderately relevant
4) Very relevant
5) Extremely relevant

****

49. My best friends are in this group.

50. Students who have past histories of being discipline problems are discriminated against.

51. In this class the better students are granted special privileges.

52. I want most students in this class to get good grades.

53. I should get along with my group members better than I do.

54. I have less work to do when I work in a group.

55. This class is disorganized.

56. The teacher explains what the rules are.

57. Students do not listen to each other when they work in groups.

58. In this class the teacher pays attention to whether I am improving.

59. The content is easier when I learn it in a group.

60. School work is fairly easy to me.

61. In this class the teacher will kick a student out of class if he/she acts up.

62. When working in groups students usually pass even if they don't do much.

63. Students want their work to be better than others.

64. I like working with students who are smarter than me.

65. It takes longer to complete the assignment when I work in a group.

66. I like relying on other students when my school work is concerned.

67. When working in groups certain students are favored more than others.

Appendix 11

Student Green Rating Form

ATTITUDE QUESTIONNAIRE DEVELOPMENT
STUDENT FORM

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3. Average grade you received last year:
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4. At present, how often do you work in groups at school?
   [1] Always
   [2] Frequently
   [3] Sometimes
   [4] Seldom
   [5] Never

5. Do you enjoy working in groups?
   [1] Always
   [2] Most of the time
   [3] Sometimes
   [4] Very little of the time
   [5] Not at all

6. How often should students help each other learn in the classroom?
   [1] Always
   [2] Most of the time
   [3] Sometimes
   [4] Very few times
   [5] Never

7. During a typical class period how much time do you spend working in groups?
   [1] All the time
   [2] More than half the time
   [3] Half the time
   [4] Less than half the time
   [5] Never

8. How often would you like to work in groups in the future?
   [1] Always
   [2] Most of the time
   [3] Sometimes
   [4] Very few times
   [5] Never

9. Under which condition do you think you learn better:
   [1] Working alone
   [2] Competing with other students
   [3] Working with other students

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RESPONSE SCALE:

1) Not at all relevant
2) Slightly relevant
3) Moderately relevant
4) Very relevant
5) Extremely relevant

****

10. Individual marks are higher than group marks.

11. We come up with more ideas when we work in groups.

12. In this class there is a clear set of rules for students to follow.

13. In this class only the good students are given special projects.

14. I learn new things when I work in a group.

15. Some students in this group do not like each other.

16. When working in groups I just want to do what I am supposed to do.

17. When working in groups students disagree with other group member's ideas.

18. Working with other students slows me down.

19. In this class, students are allowed to make up their own projects.

20. I usually like school.

21. Students make too much noise when they work in groups.

22. This class is controlled by the actions of a few students who are favored.

23. Each student in this class knows the goal of this course.

24. In this class assignments are clear so everyone knows what to do.

25. In this class I like to work with others.

26. I do better work when I work in a group.

27. When working in groups, I like receiving information from the teacher.

28. Members of the group do favors for one another.

29. The members of the group like each other.

RESPONSE SCALE:

1) Not at all relevant
2) Slightly relevant
3) Moderately relevant
4) Very relevant
5) Extremely relevant

****

30. My work isn't as original when I work in a group.

31. Working in groups made me want to find out more about the topic.

32. It is difficult getting together to work in groups outside of class.

33. Students in my group care about how much I learn.

34. Students learn to work with others when they work in groups.

35. In this group all of the students know each other well.

36. In this class students can choose where they sit.

37. This teacher sticks to classwork and does not get sidetracked.

38. When working in groups I do not have to work very hard.

39. When working in groups some students are preferred over other students.

40. Each person in the class has an opportunity to get to know the other students.

41. The teacher will put up with a good deal.

42. The students in my group really care about me.

43. Students get off the topic when they work in groups.

44. I am an important member of my group.

45. Group members forget to do the work that they are assigned.

46. The assignment is easier when I work in a group.

47. When working in groups students respect the opinions of the other members.

48. Many students are dissatisfied with much that the group does.

49. This teacher makes a point of sticking to the rules he/she has made.

RESPONSE SCALE:

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****

50. I like most of the students in my group.

51. New ideas are always being tried out in this classroom.

52. Group members confront each other in their efforts to sort things out.

53. There are displays around this classroom.

54. The teacher is consistent in dealing with students who break the rules.

55. I like working with students from other ethnic groups.

56. My work habits improve when I work in a group.

57. If I don't understand the work my group members can explain it to me.

58. It is a good idea for students to help each other learn.

59. I do not get my work done because I talk with my group members.

60. Students in this group get to know each other really well.

61. When we work together in small groups we try to make sure that everyone in our group learns the assigned material.

62. I think I would like the content better if I were not in a group.

63. Activities in this class are clearly and carefully planned.

64. I don't like students who do their best in school work.

65. I am doing a good job of learning in this class.

66. In this group I work hard to learn.

67. I like talking with my classmates when I work in a group.

Appendix 12

Student Beige Rating Form

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   [4] Very few times
   [5] Never

9. Under which condition do you think you learn better:
   [1] Working alone
   [2] Competing with other students
   [3] Working with other students

Please go on to the next page.

PART II. RATING THE ITEMS

In the first step of questionnaire development a large number of statements were prepared. In the second step a subset of items were selected for further study. The third step, which you are participating in, is to **select the best items which capture the experience of working in small groups.** To do so you are to rate each item for relevancy to small group work. The statements which students think are the most important will be included in the final scale.

INSTRUCTIONS:

Think of your experiences when working with other students in the classroom. Try to remember how you felt and what you thought when working in small groups. If you have **never** worked in a group, do the following task assuming what your reactions would be if you had worked cooperatively.

Your task is to rate each of the following statements for relevancy to small group work.
A relevant item is one that you think reflects an important feature of small group work.
In other words, a relevant feature is one that positively or negatively affects learning in a small group.

Examples of relevant statements: "When working in groups each student should participate."
"I do not like all the members in my group."
"It's fun working in groups."

Examples of irrelevant statements: "There are many windows in this classroom."
"In this class the teacher is always late."
"I do not like this textbook."

****

Use the following 5 point response scale to rate the statements:

RESPONSE SCALE:
1) Not at all relevant
2) Slightly relevant
3) Moderately relevant
4) Very relevant
5) Extremely relevant

In your opinion if a statement is really important to small group work rate it highly-as either ***very relevant*** or ***extremely relevant.*** Black out number **4** or **5** on the answer sheet.
If the statement is somewhere between important and not important rate it as ***moderately relevant.*** Black out number **3** on the answer sheet.
If the statement is not important rate it as ***not at all relevant*** or ***slightly relevant.*** Black out number **1** or **2** on the answer sheet.

****

REMEMBER WHEN RATING THE STATEMENTS DO NOT:
Do not rate the extent to which you agree or disagree with the statement.
Do not rate the extent to which you like or dislike what is being expressed.

RESPONSE SCALE:
1) Not at all relevant
2) Slightly relevant
3) Moderately relevant
4) Very relevant
5) Extremely relevant

****

10. I would have had better grades if I had been in a group.

11. When working in groups I want to do as little as possible.

12. When working in groups I like helping students with the work.

13. There is too much information to work with when we are in groups.

14. There is always one student in the group who does not want to work.

15. The work is more fun when I work in a group.

16. A good collection of books and magazines is available in this classroom.

17. In this class my teacher really cares about me.

18. I do school work because my group members expect it of me.

19. I am able to share my ideas when I work in a group.

20. Students who understand the material go too fast for the rest of the group members.

21. Students learn better work habits when they work in groups.

22. When we work together in groups our job is not done until everyone in our group has finished the assignment.

23. When working in groups the more intelligent students have to work with the weaker ones.

24. I get higher grades when I work in a group than when I work by myself.

25. When we work in groups too many people talk at once.

26. I want to help the students in my group with their work.

27. Most students want their work to be better than their friends' work.

28. The group members look forward to coming to class meetings.

RESPONSE SCALE:
1) Not at all relevant
2) Slightly relevant
3) Moderately relevant
4) Very relevant
5) Extremely relevant

****

29. My marks improve when I work in a group.

30. I could always find someone in my group who will help me if I need it.

31. Students in my group expect me to do most of the work.

32. Students help each other learn when they work in groups.

33. In this class there are set ways of working on things.

34. It's easy to get a group together for a project.

35. It is important to like the members of your group.

36. The work is divided equally when we work in groups.

37. The workload is usually less when we work in groups.

38. Rules in this class seem to change a lot.

39. When we work together in small groups we cannot complete an assignment unless everyone contributes.

40. Students compete to see who can do the best work.

41. Group members have many different interests.

42. Students want to know how others score on assignments.

43. In this class my teacher cares about how much I learn.

44. Some students do more work than others when they work in groups.

45. I do school work to keep my teacher from getting mad at me.

46. In this class the teacher takes a personal interest in students.

47. I enjoy the material more when I work with the other students.

48. The teacher doesn't know who did what when we work in a group.

RESPONSE SCALE:

1) Not at all relevant
2) Slightly relevant
3) Moderately relevant
4) Very relevant
5) Extremely relevant

****

49. My teacher likes me as much as he/she likes other students.

50. I do not think a group grade is fair.

51. In this class students enjoy working together on projects.

52. Failure of the class means very little to individuai members.

53. This teacher often takes time out from the lesson plan to talk about things.

54. My teacher likes to help me learn.

55. This class is well organized.

56. When we work together in small groups I have to make sure that the other members learn if I want to do well on the assignment.

57. The teacher explains what will happen if a student breaks a rule.

58. When working in groups certain students like to sit next to each other.

59. The students enjoy their group work.

60. A lot of friendships have been made in this group.

61. Every member of this class enjoys the same privileges.

62. Students hardly end up doing any work because they talk with their group members.

63. In this group everybody is a friend.

64. I learn to work with many people when I work in a group.

65. Students have to work hard for a good grade in this class.

66. Some group members always try to do better than the others.

67. When working in groups I want to work with my friends.

Appendix 13

Student Orange Rating Form

ATTITUDE QUESTIONNAIRE DEVELOPMENT
STUDENT FORM

The following questionnaire is part of an Educational Studies Master's thesis which is being conducted at Concordia University's Centre for the Study of Classroom Processes. The purpose of this study is to develop a questionnaire to assess student attitudes toward small group work. The final version of this questionnaire will be used to predict how student attitudes towards small group work affect learning.

Your cooperation in completing this questionnaire is greatly appreciated. Rate the items as honestly as possible. This is **not a test**; there are no right or wrong answers. The information will be kept **confidential**. Your answers will **not affect your grades** in any way.

Thank you for your cooperation.

Christina Kouros, M. A. Candidate

Dr. Philip C. Abrami, Advisor

Please do not write in this booklet.
Place your answers on the special answers sheets.
Do not leave answers blank.
If you are uncertain make your best guess.

DEFINITION OF SMALL GROUP WORK

Small group work occurs when 2 to 6 students work together to learn new material, to review material, and to complete assignments and projects which are part of a course. Characteristics of small group work may include: discussing the material, asking each other questions, helping each other learn, striving to obtain a group goal, working on different aspects of the task, taking on different roles (e.g., reporter, recorder, encourager, etc.) and sharing resources (e.g., papers, calculators, etc.). Finally, students are sometimes assigned a group grade based on their group work.

PART I. BACKGROUND INFORMATION:

1. Your sex:
   [1] Male
   [2] Female

2. Average grade you expect this year:
   [1] 90-99
   [2] 80-89
   [3] 70-79
   [4] 60-69
   [5] 59 and below

3. Average grade you received last year:
   [1] 90-99
   [2] 80-89
   [3] 70-79
   [4] 60-69
   [5] 59 and below

4. At present, how often do you work in groups at school?
   [1] Always
   [2] Frequently
   [3] Sometimes
   [4] Seldom
   [5] Never

5. Do you enjoy working in groups?
   [1] Always
   [2] Most of the time
   [3] Sometimes
   [4] Very little of the time
   [5] Not at all

6. How often should students help each other learn in the classroom?
   [1] Always
   [2] Most of the time
   [3] Sometimes
   [4] Very few times
   [5] Never

7. During a typical class period how much time do you spend working in groups?
   [1] All the time
   [2] More than half the time
   [3] Half the time
   [4] Less than half the time
   [5] Never

8. How often would you like to work in groups in the future?
   [1] Always
   [2] Most of the time
   [3] Sometimes
   [4] Very few times
   [5] Never

9. Under which condition do you think you learn better:
   [1] Working alone
   [2] Competing with other students
   [3] Working with other students

Please go on to the next page.

PART II. RATING THE ITEMS

In the first step of questionnaire development a large number of statements were prepared. In the second step a subset of items were selected for further study. The third step, which you are participating in, is to **select the items which best capture the experience of working in small groups**. To do so you are to rate each item for relevancy to small group work. The statements which you think are the most important will be included in the final scale.

INSTRUCTIONS:

TASK: Your task is to rate each of the following statements for importance to small group work.

An important feature is one that positively or negatively affects learning in a small group. In other words, rate a statement as being highly relevant to group work if it depicts a feature that affects **how students learn, how much students learn, or how much students enjoy learning in groups.**

Examples of relevant statements: "When working in groups each student should participate."
"I do not like all the members in my group."
"It's fun working in groups."

Examples of irrelevant statements: "There are many windows in this classroom."
"In this class the teacher is always late."
"I do not like this textbook."

****

Use the following 5 point response scale to rate the statements:

RESPONSE SCALE:
1) Not at all relevant
2) Slightly relevant
3) Moderately relevant
4) Very relevant
5) Extremely relevant

In your opinion if a statement is really important to small group work rate it highly-as either ***very relevant*** or ***extremely relevant***. Black out number **4** or **5** on the answer sheet.

If the statement is somewhere between important and not important rate it as ***moderately relevant***. Black out number **3** on the answer sheet.

If the statement is not important rate it as ***not at all relevant*** or ***slightly relevant***. Black out number **1** or **2** on the answer sheet.

****

REMEMBER WHEN RATING THE STATEMENTS DO NOT:
Do not rate the extent to which you agree or disagree with the statement.
Do not rate the extent to which you like or dislike what is being expressed.

RESPONSE SCALE:

1) Not at all relevant
2) Slightly relevant
3) Moderately relevant
4) Very relevant
5) Extremely relevant

****

10. In this group, we help each other with our school work.

11. I like to have other students help me learn.

12. It is the instructor who decides what will be done in our class.

13. I like to have the teacher see my work.

14. I do school work because it is fun.

15. In this group, we learn more when we work with others.

16. Working in small groups is better than working alone.

17. The instructor considers students' feelings.

18. When working in groups, I have to hurry to finish my work.

19. I do school work because it is interesting.

20. In this group, students put effort into what they do.

21. Students seem to do the same type of activities every class.

22. The group is made up of individuals who do not know each other well.

23. The instructor seldom moves around the classroom to talk with students.

24. New ways of teaching are seldom used in this class.

25. Arguing with other students makes me feel unhappy.

26. My friends want to do better work than I do.

27. When working in groups, it bothers me when I have to do it all myself.

28. I like to get better grades than other students do.

29. Teaching approaches in this class are characterized by innovation and variety.

30. In this group, we do not talk to other students when we work.

RESPONSE SCALE:

1) Not at all relevant
2) Slightly relevant
3) Moderately relevant
4) Very relevant
5) Extremely relevant

****

31. I like to be told exactly what to do in class.

32. I like to do better work than other students.

33. I do not like working with other students in school.

34. I do better work when I work alone.

35. The instructor isn't interested in students' problems.

36. It takes a long time to get to know everybody by his/her first name in this group.

37. Getting a certain amount of work done is important in this group.

38. All students in the class are expected to do the same work, in the same way and in the same time.

39. The teacher helps each student who is having trouble with the work.

40. My teachers are fair in making me follow rules.

41. Students are generally allowed to work at their own pace.

42. The group often gets sidetracked instead of sticking to the point.

43. My teachers grade my work fairly.

44. I am just as important in the group as any other student.

45. I like to compete with other students to see who can do the best work.

46. I like to work with other students.

47. The instructor is unfriendly towards students.

48. The instructor often thinks of unusual class activities.

49. Each student knows the other members of the group by their first names.

50. Students seldom present their work to the class.

RESPONSE SCALE:

1) Not at all relevant
2) Slightly relevant
3) Moderately relevant
4) Very relevant
5) Extremely relevant

****

51. There are opportunities for students to express opinions in this group.

52. Students in this group aren't very interested in getting to know other students.

53. I would like to be in a group where students often disagree with each other.

54. My grades in school really show how much I know.

55. My teacher is interested in what I have to say.

56. I do not learn well if I am given a lot of free time.

57. I would rather work on school work alone than with other students.

58. The instructor talks rather than listens.

59. There is little opportunity for a student to pursue his/her particular interest in this group.

60. I would rather work alone than argue.

61. I feel I am part of what is going on in this group.

62. I would rather work with other students than by myself.

63. I work to get better grades than other students do.

64. In this group students check answers with other students.

65. I learn new things from arguing with other students.

66. I have many questions I do not get to ask.

67. Friendships are made among students in this group.

Appendix 14

Background Questions Included In The Pink, Yellow, Green, Beige and Orange Teacher Forms

PART I. BACKGROUND INFORMATION:

1. Your sex:
   (1) Male
   (2) Female

2. How many years of full-time (or equivalent in part-time) experience do you have in the field of teaching?
   (1) 1 year or less
   (2) 2 - 5 years
   (3) 5 - 10 years
   (4) 10 -15 years
   (5) 15 years or more

3. In your opinion, how often do you feel students should help each other learn in the classroom?
   (1) Always
   (2) Most of the time
   (3) Sometimes
   (4) Very few times
   (5) Never

4. During a typical class period, how much time do your students spend working in groups?
   (1) All the time
   (2) More than half of the time
   (3) Half the time
   (4) Less than half the time
   (5) Never

5. How often would you like your students to work in groups in the future?
   (1) Always
   (2) Most of the time
   (3) Sometimes
   (4) Very few times
   (5) Never

6. How much formal training have you received in cooperative learning?
   (1) An extensive amount
   (2) Beyond introductory
   (3) Introductory level
   (4) Only familiar with terms
   (5) None at all

7. I enjoy using cooperative learning in my class.
   (1) Most of the time
   (2) Often
   (3) Sometimes
   (4) Rarely
   (5) None of the time

8. I find cooperative group work enhances the quality of learning.
   (1) Most of the time
   (2) Often
   (3) Sometimes
   (4) Rarely
   (5) None of the time

9. In what curriculum subject area do you specialize in?
   (1) Arts and Languages
   (2) Social Sciences
   (3) Applied Sciences
   (4) Vocational
   (5) Other

Appendix 15

Background Questions Included In The Pink, Yellow, Green, Beige and Orange Expert Forms

PART I. BACKGROUND INFORMATION:

1. Your sex:
   (1) Male
   (2) Female

2. How many years of experience as a trainer or researcher do you have in the field of cooperative learning?
   (1) 1 year or less
   (2) 2 - 5 years
   (3) 5 - 10 years
   (4) 10 -15 years
   (5) 15 years or more

3. Presently, which of the following best describes your current position or occupation? (Please choose only one)
   (1) trainer
   (2) principal
   (3) teacher
   (4) researcher
   (5) other

4. In the cooperative learning training you have received, what method have you found yourself most influenced by:
   (1) Johnson & Johnson's Learning Together
   (2) Slavin's Student Team Learning
   (3) Kagan's Structural Approach
   (4) Sharan's Group Investigation or other humanistic approaches
   (5) other or do not know

The following questions are being asked of all respondents; -students, teachers, and experts.

5. In your opinion, how often do you believe students should work in groups?
   (1) Always
   (2) Frequently
   (3) Sometimes
   (4) Seldom
   (5) Never

6. In your opinion, how often do you feel students should help each other learn in the classroom?
   (1) Always
   (2) Frequently
   (3) Sometimes
   (4) Seldom
   (5) Never

7. During a typical class period, how much time do you feel students should spend working in groups?
   (1) All the time
   (2) More than half of the time
   (3) Half the time
   (4) Less than half the time
   (5) Never

8. I find cooperative group work enhances the quality of learning:
   (1) Most of the time
   (2) Often
   (3) Sometimes
   (4) Rarely
   (5) Never

9. Under which condition do you think students learn best?
   (1) Working alone
   (2) Competing with other children
   (3) Working with other students