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**Assessing the Impact of a Conflict Management Program
in its Second Year of Implementation**

by

Vanessa Lybanon

A thesis submitted to
the Faculty of Graduate Studies and Research
in partial fulfilment of
the requirements for the degree of

Master of Arts

Department of Psychology

Carleton University

Ottawa, Ontario

May 1997

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the Faculty of Graduate Studies and Research
acceptance of the thesis:

**"ASSESSING THE IMPACT OF A CONFLICT MANAGEMENT PROGRAM
IN ITS SECOND YEAR OF IMPLEMENTATION"**

submitted by

Vanessa Lybanon

in partial fulfillment of the requirements
for the degree of Master of Arts

Chair, Department of Psychology

Thesis Supervisor

Carleton University
May, 1997

Abstract

The present study was designed to evaluate the impact of a Conflict Management training program on middle school children's cognitive and behavioral social problem solving skills. At the time that this study was first introduced, the Conflict Management program was entering its second year of implementation. Thus, documenting the short and long-term impact on students' cognitive Social Problem Solving skills became the primary purpose of the present study. Furthermore, as the extant literature has produced equivocal results concerning students' actual skill usage, a second purpose of this study was to determine whether or not students were actually applying these skills to resolve their real-life interpersonal conflicts. 148 students in grades five and six completed several self-report questionnaires tapping their overall attitudes towards conflict, their typical responses towards conflict, and their specific knowledge of the curriculum material. Also, students' application of these cognitively learned skills were assessed through two, potentially conflictual, structured behavioral simulations. Furthermore, teachers completed a rating scale indicating the frequency with which they observed their students engaging in prosocial behaviours and provided the present research with some information regarding the fidelity of program delivery.

Overall, the program, in its' present state, did not produce very much change in students' cognitive or behavioral social problem solving skills and abilities. First, students receiving the program curriculum did not demonstrate superior cognitive problem solving ability, relative to a no treatment control group. Second, when the two program groups were compared to each other, results revealed that the differences between the two

program groups were sparse; suggesting that a second implementation of the program does not increase students' skill level. Third, longitudinally, no evidence was found suggesting that the continued reinforcement of skills (ie. implementing the program for two consecutive years) actually improved or maintained students' cognitive problem solving ability. Fourth, evidence concerning students' actual skill application, suggested that for the most part, students were not utilizing the curriculum taught skills to resolve their interpersonal conflicts. Finally, results revealed that the program students did not utilize the curriculum skills more often than the no treatment comparison students. Several potential explanations for these findings are presented in the discussion, along with various recommendations for future research endeavors of this kind.

Acknowledgements

Its 1997 and this three year jaunt has finally come to an end. Reflections on this journey have led to the cognizance that projects such as these, are never accomplished alone; emotional and professional support have been offered by a great many people. The time, therefore, for thanks and appreciation has arrived.

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Introduction

American epidemiological data suggests that between 10 - 22% (Weissberg & Allen, 1986; Weissberg, Caplan, & Harwood, 1991) of all children and adolescents suffer from mental health problems that are so severe that they need to be treated by mental health services. In Ontario, the statistics are equally alarming. For instance, Offord, et al., (1987) reports that over a six month period, prevalence rates for mental illness in children as young as four and adolescents as young as 16 was approximately 18% of the over three thousand subjects surveyed. What's more astonishing is that only one child out of every six had been seen by a mental health or social service representative. Obviously, a large discrepancy exists between the incidence rates of mental illness in children and the treatment services available to them.

Changes in societal roles and expectations are among the most often cited reasons for these increases. For example, within the last three decades, family composition has changed, poverty rates have increased and there has been an influx of media related violence (Weissberg, et al., 1991). These changes have led to increases in divorce rates, increases in unstable single parent and step families, and increased violence in the schools. These changes, in turn, have forced people to work longer hours in less fulfilling jobs, with many giving up educational or future aspirations, as their immediate needs for food and shelter have to be fulfilled. Gesten and Weissberg (1986) have suggested that these changes indicate that parents have less time to be with, supervise, and educate their children. The lack of positive contact with parents and other adults, tends to leave these children deficient in the kinds of social and personal competencies that are needed to

participate effectively in interpersonal relationships. Often, when confronted with a challenging interpersonal conflict, these children have to rely on their own skills and initiative to resolve the problem. If they do not possess these skills, then the problems are left unresolved, and these children can never experience any sense of accomplishment. For many, consistent failure to resolve problems may lead to the development of adverse emotional and behavioral health as their self-esteem diminishes and they learn to cope with their frustrations in an aggressive and violent manner. Thus, these children may grow up to become maladjusted individuals suffering from a multitude of problems and, in some cases psychopathologies.

One way of reducing the incidence of future psychopathologies is to teach young children a set of critical social problem solving skills. By equipping children with these skills, it is hypothesized that they will become more adept at resolving their own interpersonal conflicts. Consistent success in interpersonal problem solving should increase their own perceptions of competence, increase their self confidence, and allow them to further develop and strengthen their skills so that they can become less prone to the negative impact of a variety of life stressors. As social problem solving programs have become the primary mechanism by which social competence in children is enhanced, investigations on their effectiveness has become an important aspect of program delivery.

In the following pages, a selected review of the effectiveness of social problem solving training programs will be presented. The limitations typically handicapping these investigations will also be discussed. As there are a variety of interventions currently available, the discussion opens with a description of the differences between each type of

intervention. This will be followed by a discussion of the importance of displaying competent behaviour and how deficits in certain problem solving skills have led to the implementation of social problem solving skills training programs as a method of modifying socially incompetent behaviour.

Prevention Programs

Within the last three decades, there has been a growing interest and emphasis on the mental-well-being of the individual. This interest has blossomed in the creation and use of programs and services which attempt to prevent the development of mental illness and promote "positive mental health" (Bloom, 1979). More recently, programs and services of this nature have focused their prevention efforts and mental health promotion efforts on latency-aged children (see Urbain & Kendall, 1980 for a review). Many of the programs and services offered to date have indicated that they have as a goal the "prevention of mental illness". However, it has become increasingly obvious that not all programs are preventive in the true sense of the word. Thus, being able to distinguish a true prevention program from an intervention has become very important.

Classification of Prevention Programs: Tertiary, Secondary, and Primary Interventions

The most parsimonious classification system to date is one in which the programs are divided into three distinct categories: Tertiary interventions, Secondary interventions, and Primary prevention interventions. Under this system, programs differ from one another based on how they help the targeted population and when program delivery to the targeted population occurs.

Tertiary interventions are more rehabilitative (Bloom, 1979; Klein & Goldston,

1977) than preventative. That is, tertiary programs are often delivered to those specific populations for whom a disorder or disability has already been diagnosed. The primary aim of such interventions is to help this specific population adapt to the disabilities often associated with a their disorder. Programs categorized as tertiary interventions then, are those that help improve a child's health by lessening the severity of symptoms and/ or impairments that often accompany a disorder or disability (Price & Smith, 1985; Perlmutter, Vayda, & Woodburn, 1976).

Unlike tertiary interventions, secondary interventions are considered to be prevention efforts. Their main objective is to decrease the prevalence of a particular disability. This is accomplished by reducing the duration of the disorder through the development of early screening measures and the rapid implementation of treatment (Blair, 1992; Bloom, 1979; Price & Smith, 1985). Early screening of elementary school children for emotionally related school problems (Bloom, 1979) or early treatment for substance abusers (Price & Smith, 1985) are examples of secondary intervention efforts. Thus, just as with tertiary interventions, secondary intervention programs are delivered to a target group of people subsequent to the development of a disorder. However, secondary intervention efforts attempt to identify people who are in the early stages, so that they may implement a treatment package that can delay or prevent the further development of the disorder.

Programs classified as "primary prevention" are those that are designed to reduce the incidence rate of a particular disorder in the population as a whole (Blair, 1992; Bloom, 1979; Gullotta, 1994; Perlmutter, Vayda, & Woodburn, 1976; Price & Smith,

1985). In other words, these programs are typically delivered to "healthy" populations, and in some cases, to a specifically targeted group known to be at risk for developing a particular disorder (Blair, 1992; Bloom, 1979; Perlmutter, Vayda, & Woodburn, 1976). Unlike the previously described programs which aim to help people adjust to the disability or suffer less, primary prevention programs inhibit a particular disorder's development altogether. Essentially, they seek to nip the problem in the bud. State-wide immunization programs for children and educational programs designed to prevent substance abuse (Price & Smith, 1985) are examples of primary prevention programs. The goal of these programs is to administer treatment (as is the case with immunization programs) or to teach the skills, strategies and coping mechanisms necessary to avoid developing the problem altogether.

Primary prevention as Health Promotion

It is of interest to note that the three levels of interventions have as their basis an educational component. These three types of programs appear to help a target population through educational measures. However, as both tertiary and secondary interventions provide such help after a disorder has already developed, they are considered to be ill-health coping interventions as opposed to health promoting interventions.

Several authors (Blair, 1992; Bloom, 1979; Price & Smith, 1985) have indicated that primary prevention programs are in fact, instruments of "health promotion". These types of programs reduce the prevalence of mental illness because their very nature is to promote health in the general population. Primary prevention programs promote social and functional competence, coping capacity and positive mental health in the individual

(Goldstein, 1977; Klein & Goldstone, 1976; Rae-Grant, Gladwin, & Bower, 1966). These types of programs facilitate the enhancement of personal strength (Re, Noble, & Hoard, 1990) through non-specific practices that potentially have an impact or positive effect (Bloom, 1979) on an individual's cognition and behaviours, which in turn, allow them to find those resources that will help them resolve problems and cope with life stresses. Health promotion is viewed as being different from "disease protection" (Bloom, 1979) or "specific protection" (Blair, 1992), in that disease protection practices incorporate specific actions known to prevent a particular disease. Such actions are only useful in the prevention of that particular disease; they do not appear to be useful in the prevention of any other disease (i.e. drinking fluoridated water does not prevent any other disorder except the occurrence of cavities). Health promotion practices, on the other hand, incorporate a variety of methods, many of which may have a positive impact on a population's overall general mental health. Such actions, then, may be useful in preventing a variety of different types of disorders (i.e. providing social support mechanisms in times of stress may prevent a variety of mental illness like depression, alcoholism, and suicide). Thus, "those practices that have a generally salutary but unspecifiable effect on health are referred to as "health promotion" (Bloom, 1979, p.181).

In summary, primary prevention programs are those programs which attempt to stop new cases of mental illness from occurring in a population that has not yet been identified as "demonstrating dysfunctional behaviour" (Gullotta, 1994, p.6). Such programs avert the advent of mental illness by enhancing the population's level of positive mental health. This is accomplished because primary prevention programs are educational

in nature and their aims are to "increase the individual's capacities for dealing with crisis and for taking steps to improve their own lives" (Goldston, 1977, p.20). In other words, the aim of primary prevention programs, through the guise of health promotion, becomes that of competence-building.

Competency-Building Programs

Cowen (1977) asserts that the "best possible defense against problems, is to build up resources and adaptive strengths in people from the start" (p. 11). Furthermore, it has been hypothesized that such attention early in life can forestall the development of serious problems that, if left untreated, can produce a lot of human suffering and incur great societal costs (Cowen, Hightower, Pedro-Carroll, & Work, 1990). In this respect, primary prevention programs, through the incorporation of health promotion practices, engender to build up and strengthen those skills and strategies that will make children more competent in their daily experiences and social relationships. Thus, one of the pathways to primary prevention is through the implementation of competence-building interventions (Cowen, 1984).

Competence building programs focusing on children attempt to teach them important behaviours and skills that will directly enhance their current and future functioning and prevent the development of future problems. It is assumed that enhanced functioning resulting from skill acquisition will ultimately be preventive for a number of reasons: the children will be better able to deal with stress, become more adept in social situations, and have greater self-confidence. Bloom (1979) has argued that work in the area of social competence enhancement is important, primarily because a lack of

competence and effective coping strategies precipitates a loss of self esteem, causing a lot of human suffering in the individual (Weissberg & Allen, 1986). He goes on to suggest that competence enhancement programs are probably the most persuasive way to help people with individual and social problems. In fact, Tisdale and St. Lawrence (1989) suggest that the enhancement of skills thought to be related to socially competent behaviour may actually serve as a protective factor with the potential to prevent the development of future psychopathology as such enhancement may help the child to cope more effectively and adaptively with everyday life stressors and problems.

Despite the fact that no agreement has been reached on how to operationally define social competence (Anderson & Mesnick, 1979), there have been suggestions that social competence is a global or umbrella term (Gesten & Weissberg, 1986; Mash & Terdal, 1992; Spitzberg, Canary, & Cupach, 1994) encompassing many aspects of behaviour: from gross- motor functioning, to language skills, to sensitivity in social relations (Eisenberg & Harris, 1984) that occur across a variety of situations. Some have suggested that social competence involves an individual's capacity to integrate cognitions, affect, and behaviours, in order to achieve successful social goals and developmental outcomes (The Consortium on the School-Based Promotion of Social Competence, 1994).

The question of competency in childhood has been found to be an important, and often determining, factor in a child's future growth and well-being. These skills have a tremendous impact on how effectively children cope with their interpersonal problems (Little & Kendall, 1979). Whether a child is socially competent in his/her interpersonal

and peer relationships has implications for their future well-being and adjustment in adolescence and adulthood (Asher & Renshaw, 1981; Cowen, Hightower, Pedro-Carroll, & Work, 1990; Elias & Weissberg, 1990; Kendall & Hollon, 1979; Mize & Cox, 1989; Spivack & Shure, 1974; Spivack, Platt, & Shure, 1976). Ogilvy (1994) suggests that social or interpersonal deficits found in childhood are strong predictors of later academic, social, and psychological functioning. Often, those children who are not socially competent have been characterized as aggressive, impulsive (Spivack, Shure & Jaeger, 1971), and withdrawn and they have been found to be at greater risk for school maladjustment. They are also more likely to drop out of school, participate in delinquent acts, develop substance abuse problems, and have been found to display anti-social behaviour and adult psychosis (see Van Hasselt et al.'s 1979 review; Gresham, 1981; Weissberg & Allen, 1986). Furthermore, these deficiencies have been associated with early disturbances in peer relationships, resulting in the increased use of mental health services by children and adolescents (Gesten & Weissberg, 1986). Between 6 to 11% of third to sixth grade students have been found to be friendless (Weissberg & Allen, 1986) "leading to concurrent and long - term emotional difficulties" (p. 154). Clearly, the necessity to prevent such dismal occurrences, provides a strong rationale for the creation and utilization of programs that specifically target the enhancement and improvement of adaptive interpersonal skills (Ogilvy, 1994).

"Social competence enhancement programs have the potential to improve and foster cognitive, affective, and behavioral skills, enhance an individual's expectations concerning effective conflict resolution, create opportunities to observe and practice effective solutions to a variety of problems and introduce a common language fostering support and communication between significant persons in the child's life" (Tisdale and St. Lawrence.

1989, p. 338).

Social Competence enhancement through the use of social problem solving interventions.

A review of the literature suggests that social competence encompasses several components; one of which is social problem solving (SPS) skills (Elias & Weissberg, 1990; Price, Cohen, & Ramos-McKay, 1989; Spivack & Shure, 1974; Spivack, Platt, Shure, 1976). In fact, it has been suggested that social competence appears to consist of a set of social problem solving skills, without which competent and effective social behaviours across different situations cannot be displayed (The Consortium on the School-Based Promotion of Social Competence, 1994). Further, it seems that this view has an added heuristic value, in that these skill can be clearly linked to the concept of "risk" and "protective factors" (Consortium., 1994). Rutter (1987), who has reviewed the literature on socialization factors assisting children in adapting and thus overcoming their everyday difficulties, has suggested that social problem solving skills are a set of specific "mechanisms" that serve as a protective function in the individual, even if the individual has encountered harmful situations. Thus, it seems that these skills overlap with other cognitive and affective skills and together serve a dual function; they allow the individual to interact with others in a competent manner, and they have the added benefit of equipping the individual with coping skills necessary to endure a variety of potential life stressors. Social competence through its set of core skills, "can be viewed as a set of life skills necessary for one's adaptation to diverse ecologies and settings" (Consortium, 1994, p. 275).

Social problem solving is based on a cognitive- behavioral process that focusses its

efforts on helping children develop a problem solving thinking process, enabling them to resolve their interpersonal problems and conflicts in a systematic and organized fashion (Spivack & Shure, 1974; Weissberg & Allen, 1986). Theoretically, social problem solving skills are comprised of a "critical" set of cognitive skills, attitudes, and behavioral abilities (Spivack & Shure, 1974; Weissberg & Allen, 1986). Despite differences in labelling, such as Interpersonal Cognitive Problem Solving (ICPS) skills (Spivack, Platt, and Shure, 1976) and Social Decision Making (Elias & Clabby, 1989), the core concepts which comprise the family of problem skills remains central to all. Specific problem solving skills include: the ability to identify a problem; "Calming Down" and thinking before acting; recognizing and expressing feelings in oneself; understanding another person's feelings and point of view; setting a positive goal; generating many alternative solutions and linking them with realistic consequences; selecting the best plan of action and implementing it; and trying again if the first solution does not work (D'Zurilla & Goldfried, 1971; Elias & Weissberg, 1990; Shure, 1979; Shure & Spivack, 1970b; Shure & Spivack, 1982, 1989; Spivack and Shure, 1974; Spivack, Shure, & Jaeger, 1976; Spivack, Platt, & Shure, 1976; Tisdale & St. Lawrence, 1986; Weissberg & Allen, 1986; Weissberg, Caplan, & Bennetto, 1988, cited in Weissberg et al., 1989). Together, these skills are important in that they foster a sense of self-efficacy in the individual, particularly as they are purported to help develop coping skills (Elias & Branden, 1988), positive interpersonal relationships, and social adjustment.

Coleman, Wheeler, and Webber (1993) suggest that social problem solving skill training should be differentiated from social skills training. The former deals with the

training of cognitive processes through a generic sequence of steps that are related to behavioral adjustment in general; the latter focusses on teaching a number of independent behaviorally defined skills, without emphasizing the underlying cognitive processes. Once this generic sequence is learned, it is assumed that the steps will be applicable to a wide variety of problem situations often arising in daily living, because of the strong belief that cognitions "mediate" competent behaviour and behavioral adjustment (Coleman et al., 1993; Denheim & Almeida, 1987; Spivack & Shure, 1974).

Interest in interpersonal or social problem solving and its relation to social competence, adjustment, and resiliency stems from Jahoda (1953, 1958 cited in Urbain & Kendall, 1980) who was the first to emphasize a theoretical connection between adjustment and competence in interpersonal problem solving. Jahoda suggested that mental health is related to a sequence of problem solving skills that are characterized by a tendency to recognize and admit that there is a problem, the ability to generate many different possible solutions to the problem, and to make decisions allowing the creation of a step by step action plan to resolve the problem.

A lot of work has been done in order to provide evidence validating this assumption. One group, the Hahnemman group, became pioneers of this new movement. Their investigation into the merits of this assumption began in the late 1960's, when they found that normal and disturbed adolescents thought about and solved interpersonal problems in markedly different ways (Spivack & Levine, 1963; cited in Spivack & Shure, 1974). Specifically, these disturbed adolescents were found to be deficient in several skills like alternative thinking, consequential thinking, and means-end thinking that made up

what the Hahnenman group identified as a family of Interpersonal Cognitive Problem Solving (ICPS) Skills (Spivack, Platt, & Shure, 1976). Further investigations, conducted with several different populations, repeatedly revealed the same pattern. Deficiencies in one or all of these skills were found in children as young as four years of age (Shure & Spivack, 1970b; Shure, Spivack, & Jaeger, 1974), in normal fifth graders from lower and middle socioeconomic status (Shure & Spivack, 1970a), in 10-12 year old normal and disturbed children (Shure & Spivack, 1972), in psychiatric adult populations (Platt, & Spivack, 1972), in a more homogeneous group comprised of ten year old children presenting a variety of behavioral difficulties in their classrooms (Shure & Spivack, 1970a), and in an institutionalized group of nine year old children (Larceny, Spivack, & Shure, 1972, cited in Shure, 1979). The fact that deficits in one or more of these skills were found to differentiate healthy populations from maladjusted ones, led these group of investigators to the conclusion that many future psychopathologies may potentially be averted if children were taught these skills early in life.

Accordingly, Spivack and Shure (1974), developed a social problem solving training program consisting of 46, 20 to 30 minute lessons, through which children were taught to recognize and identify problems, generate alternative solutions, recognize potential obstacles and consequences, and to produce step-by-step action plans useful in resolving the problem (Lahey & Strauss, 1982). A total of 219 economically disadvantaged, four year old, black nursery school students, were involved in Spivack and Shure's (1974) first investigation. In the first year of implementation, 113 of these preschoolers received treatment, while the remaining 106 preschoolers did not receive any

training. Upon entering the second year of implementation, attrition reduced the original sample size, to a total sample of 131 subjects for which complete data sets were available during the two year investigation. The original subjects were further subdivided into one of four groups: two years of training, trained nursery only, trained kindergarten only, and no training. Such a design made it possible for the investigators to study both the short- and long-term effects of treatment. Changes in problem solving knowledge were measured through two hypothetical role play measures, while their behavioral adjustment was rated by their classroom teachers. Pre-test scores obtained from the teacher rated behavioral measure were used to classify children as either well-adjusted, inhibited, or impulsive (see Spivack & Shure, 1974 for a review).

Shure (1979) presents a summary of the evaluation results gathered over a four year period. In her review, she states that there was an overall treatment effect for all children who had received training. Specifically, when compared to children who did not receive training, program children displayed an increase in problem solving knowledge and thinking. Interestingly, only two of the problem solving skills taught were significantly affected. Alternative and consequential thinking were the two skills that showed any significant improvement from pre to post testing; they were more likely to generate effective alternative solutions and showed a greater sensitivity to the consequences of interpersonal acts. Further, these two skills were also the most related to changes in behavioral adjustment (Spivack & Shure, 1974). It seems that those children who showed the most improvement in alternative and consequential thinking, also showed the most change in behavioral adjustment as rated by their teachers, who were not blind to the

experimental conditions. Probably the most encouraging findings concerned those students who had initially been rated as inhibited and impulsive. Specifically, inhibited and impulsive children were found to have undergone significant behavioral changes. 50 % (22 out of 44) of children initially rated as impulsive and 75% (21 out of 28) of children initially rated as inhibited at pretest, were rated as better adjusted after the intervention took place. The training program was also found to be preventive in that those children initially rated as well-adjusted before the intervention, were found to have maintained their level of adjustment after the intervention.

Additional findings revealed that the year training was first implemented did not make a difference; children first taught in nursery showed similar improvements to children first trained in kindergarten. Furthermore, follow up studies revealed that these effects were maintained one and two years after original implementation. These results have been replicated with middle school children (Spivack, Platt, & Shure, 1976; Spivack and Shure, 1982), and with children for whom mothers became their primary educators (Shure, 1979; Spivack & Shure, 1974). It must be noted, however, that the teachers who implemented the curriculum also rated the children's behavioral adjustment, and thus these ratings may have been influenced by a certain amount of teacher bias. Shure (1979) asserts that this is not the case. Similar ratings were obtained from a separate group of teachers who had rated the children's behavioral adjustment at post intervention.

For many, the teaching of social problem solving skills has become the primary mechanism by which to help children not only resolve their problems and conflicts but also to improve their social or interpersonal relationships and social adjustment. Due to the

multitude of social problem solving training programs currently being implemented, several reviews on program effectiveness have been completed (Coleman, Wheeler, & Webber, 1993; Pellegrini & Urbain, 1985; Spivack & Shure, 1982; Urbain & Kendall, 1980). Accordingly, much debate on their effectiveness has been generated, because these efforts have produced mixed results.

Overall, programs that have attempted to educate students in basic social problem solving skills, have been shown to be successful. Students, when tested through surveys, interviews, and behavioral role-play, have been shown to increase their problem solving knowledge, when compared to those students who did not receive such training (Elias, 1986; Gesten, Flores de Apodaca, Rains, Weissberg, & Cohen, 1979, cited in Cohen, Hightower, Pedro-Carroll, & Work, 1990; Spivack & Shure, 1974; Spivack, Platt, & Shure, 1976; Weissberg, Caplan, & Sivo, 1989). Specifically, trained children have shown a significant improvement in their problem solving ability, particularly in the areas of alternative solution generation and consequential thinking. Recall that Spivack and Shure (1974) and Spivack, Platt, and Shure (1976) produce evidence suggesting a direct relationship between changes in problem solving ability and changes in teacher ratings of overt behavioral adjustment. Through correlation matrices, analysis revealed that the trained children who had improved the most in social problem solving knowledge were also the ones who improved the most in teacher ratings of overt behavioral adjustment. Unfortunately, other efforts of this kind have been unable to provide any support for the relationship between increases in social problem solving knowledge and increased behavioral adjustment (Elardo & Caldwell, 1979; Weissberg Gesten, Carnike, et al., 1981).

For instance, Elardo and Caldwell (1979) evaluated the effects of a social development program on nine and ten year old children's classroom adjustment and perspective taking ability. 68 matched pairs participated in the program evaluation; 34 children received training in problem solving skills from their regular teachers, whereas 34 received no training at all. Even though no details were offered concerning the specific curriculum content, the authors did mention that the curriculum consisted of 72 lessons aimed at improving children's role taking and social problem solving ability. Role taking ability and the number of alternative solutions generated were measured with two hypothetical role play scenarios, in which stories containing problematic encounters were read to the children. Teachers rated the children's classroom adjustment on several distinct factors: disturbance, impatience, disrespect-defiance, comprehension, inattentive-withdrawn, irrelevant-responsiveness, creative initiative, and need for closeness to teacher.

When compared to control children, trained children generated more alternative solutions, and were rated by their teachers as being more respectful, more creative, and more likely to demonstrate self-control. Furthermore, teachers also rated trained children as being more concerned for others, less likely to be impulsive, and less likely to blame others for their problems. Taken together, these findings suggested to the authors that the program was effective, because trained children demonstrated an increase in their ability to brainstorm and were rated as better adjusted by their teachers. However, as the teachers were not blind to the experimental conditions caution in interpretation is warranted. Moreover, the authors did not attempt to measure generalizability to other contexts.

Weissberg, Gesten, Carnike, Toro, Rapkin, Davidson, and Cowen (1981) looked

at the impact of a 42 lesson social problem solving training curriculum that was utilized with 563 suburban and urban children in grades 2 through 4. Through role-play, videotaped stories, modelling, coaching, competitive games and small group discussions, regular classroom teachers taught children such problem solving skills as alternative and consequential thinking. A teacher-student dialogue session was also incorporated after formal training, where program material was reviewed and applied to a variety of conflicts that the children had already experienced in their daily lives.

A pre/post design consisting of student interviews, student self report questionnaires and a behavioral simulation measured changes in children's problem solving ability. In addition, teachers rated the children's behavioral adjustment and a measure of peer acceptance was also used to measure sociometric status.

As in previous investigation, program children, when compared to a control group, were found to have significantly improved their problem solving abilities as assessed by cognitive and behavioral measures. Specifically, trained children offered more competent solutions and they were more likely to persevere in their attempts to resolve a conflict embedded in a behavioral simulation.

Furthermore, program children were also more likely to report that they had greater confidence in themselves and in their ability to resolve interpersonal problems. Despite the fact that sociometric status was unchanged, both trained suburban and urban children were found to have better adjustment scores on teacher measures of shy-anxious behaviour, summed indices of social competence, and global assessments of school adjustment and student likability. Thus, based on these findings the authors concluded

that the 42 lesson plan improved both the suburban and urban 4th grade children's problem solving skills and classroom adjustment. The program was also seen as facilitating students' understanding of problem situations and contributing to their increased confidence in their problem solving skills. Furthermore, the program children's actions in the behavioral simulation suggests that acquired cognitive skills do generalize to real life behavioral performance outside the classroom context. Yet, the authors note that even though improvements in problem solving ability and adjustment were found, no direct association between these two areas was found, contrasting Spivack and Shure (1974) and Spivack, Platt, and Shure, (1976). None of the correlations conducted with these two types of change scores were significant.

Yu, Harris, Solovitz, and Franklin (1986) implemented a social problem solving training program for 23 male psychiatric outpatients, aged seven to twelve. From this sample, acquired through clinic referrals, two treatment groups and one control group were formed. The two experimental groups received training in problem solving skills, whereas the control group received none. Treatment group 1 underwent 20 weeks of training consisting of two 50 minute sessions, whereas treatment group 2 received 20 weeks of training once a week for 90 minutes. A pre/post design measured changes in problem solving ability, and parents rated their children's behavioral adjustment on the Child Behaviour Checklist. Results indicated that those children exposed to the training package produced a greater number of alternative solutions which were more relevant to the hypothetical peer conflict role play stories than those generated by untrained children. Parental ratings of behavioral adjustment revealed that trained children showed a greater

amount of change at post-test in such areas as social competence, and internalizing and externalizing behaviours. However, the authors note that despite these positive changes, the changes in problem solving behaviour did not affect the changes in adjustment; all correlations between these two areas were not significant.

Unlike the preceding investigations where changes in behavioral adjustment have been consistently found, other evaluations of social problem solving training programs have produced mixed results. For instance, Weissberg, Gesten, Rapkin, Cowen, Davidson, Flores de Apodaca and Mckim (1981) evaluated the impact of a teacher trained, 4 month, 52 lesson social problem solving training program. 243 third grade white suburban and black inner-city children participated in the program evaluation. Program impact was evaluated through the use of several self report questionnaires, that measured the children's skills and abilities in problem identification, alternative and consequential thinking, perspective taking, and means-end thinking skills. Hypothetical role play scenarios were utilized to measure the children's ability to select the most effective problem solving strategy. A behavioral simulation measured their problem solving performance across settings and recall of the problem solving steps. Measures of behavioral adjustment were obtained from the classroom teachers, who rated the children on three different inventories. Sociometric measures of peer acceptance and likability were also gathered.

As in the previous investigations, trained children improved on cognitive skills like problem identification, alternative solution generation, consequential thinking and verbalization of the steps to problem solving. However, no differences were obtained

between these two groups on means-end thinking or perspective taking. Results obtained in the behavioral simulation indicated that these skills did in fact transfer to other situations, as attested to by the fact that trained children recalled more of the steps to problem solving, they attempted more solutions and they also were more persistent than control children. Mixed results were found on teacher rated behavioral adjustment. Trained suburban children were found to be better adjusted than were trained inner-city youth, who actually declined in adjustment scores after the intervention. When asked why, urban teachers reported that although the children had learned the concept of brainstorming, the solutions they were generating were of an aggressive and anti-social nature. The authors concluded that socio-demographic status and the condition of the location should be taken into account when such interventions are utilized.

Olexa and Forman (1984) tried to determine if the inclusion of an operant teaching technique would enhance and strengthen those skills acquired through a social problem solving training program. 64 black fourth and fifth grade children, selected from two separate classes, were randomly assigned to one of four groups: a social problem solving training group, a combined training group comprised of social problem solving training and a response/cost technique, a response/ cost training group, and a no treatment group. Although all treatment groups received eight weeks of training, the amount of training received per week varied with each group. For instance, the problem solving group received one, 50 minute lesson per week, whereas the combined treatment and the response/cost treatment group each received one, 50 minute lesson per day. No training of any sort was given to the control group, although occasional discussions on problem

solving occurred. In this study, only "Title 1" teachers were responsible for program implementation, whereas both teachers were asked to rate the children's behavioral adjustment. The evaluation also comprised of assessing children's alternative and consequential thinking ability. Overall, those children who had been in the problem solving training and in the combined training group were found to have significantly higher scores in problem solving ability. That is, children in both these groups generated a greater number of solutions and they were more likely to think of potential consequences than those children in the response/cost training group and in the no treatment group. Follow-up data, collected five weeks after the training program's termination, indicated that these gains were maintained. Interestingly, teacher ratings of behavioral adjustment were not as favourable. According to these ratings, "Title 1" teachers considered the children in the problem solving group to be the most poorly adjusted post intervention, when compared to the other three groups. Adjustment ratings obtained from the regular teachers indicated that the control children were perceived to be better adjusted than those who had received treatment. At follow-up, no differences in adjustment were found between the social problem solving group and the combined training group, suggesting that there was a slight improvement in the behaviour five weeks after the termination of training. Thus, the authors concluded that although the training program improved problem solving knowledge, it had no impact on behavioral adjustment. However, as in many of the preceding investigations, teachers were not blind to the experimental condition, so teacher bias cannot be ruled out. Also, the authors did not attempt to determine why the problem solving group was considered to be so poorly adjusted at post

intervention.

Alvarez, Cottler, and Jason (1982) evaluated the effects of a short term social problem solving program implemented with latency-aged inner-city grade 4 children. Using a delayed intervention design, students were randomly assigned to an immediate or delayed training group. Through such a design the delayed intervention group has a dual purpose: it is used as a control group for the immediate training group, and then as its own comparison group after it has received training. Unlike previous studies, two psychology graduate students implemented the 10 week program in two, 1 hour weekly sessions. The authors assessed children's problem solving ability with a hypothetical role play activity and a behavioral simulation. Children's adjustment was assessed by having teachers rate their behaviours on such dimensions as: good student, "gutsy", peer sociability, rules, and their frustration and tolerance levels. The authors also hypothesized that changes in problem solving knowledge would impact on the children's levels of self-esteem and peer acceptance. Results suggested that the immediate training group, when compared to the delayed training group (who had received no training at that moment), were more likely to generate a greater number of alternative solutions and think of potential consequences to their actions. However, differences in the quality of these alternative solutions were not found at immediate post test. Instead, the quality of alternative solutions was greater for the immediate group at follow-up conducted 6 weeks after the delayed intervention group had received the 10 week training program. At this point, the delayed intervention group was also found to have generated a greater number of alternative solutions when compared to their own pre test scores. The two groups

were not found to differ on any of the other measures; no changes in self-esteem, teacher rated adjustment, and peer acceptance were found to be significant, although the quality of alternative solutions generated in the behavioral simulation did appear to be in the right direction.

In summary, social problem solving programs have been found to be effective, when changes in children's problem solving ability are investigated. However, inconsistencies in this area have been reported as these types of programs do not appear to be as effective in changing children's behavioral adjustment. No strong conclusions can be made concerning the program's effectiveness in producing changes in children's behavioral adjustment because of the possibility of response bias. Unfortunately, most of the teachers who rated the children's behavioral adjustment were aware of the experimental conditions at the time of rating.

Limitations to the Studies

Several potential explanations have been offered that attempt to account for the diverse and often equivocal results generated by these investigations of the effectiveness of social problem solving training programs. In reality, it can be said that the programs failed to meet expectations for a number of reasons. These include: a failure to use blind coders; a failure to look at generalization effects including an absence of potential longitudinal impact due to the use of short intervention programs and the use of unreliable measures; the lack of data concerning the children's actual skill application in behavioral contexts; and a lack of documentation concerning different aspects of program implementation.

Teachers as raters Conclusions concerning the effectiveness of social problem

solving programs have been thwarted by the fact that most of these programs have been unable to consistently show changes in trained children's behavioral adjustment. A plausible explanation for these mixed results concerns the fact that the teachers who rated the children were biased in some way. All the teachers in these investigations were aware of the experimental conditions, namely because they were the ones who were implementing the program curriculum (Weissberg, Gesten, Carnike, et al., 1981). It is possible that this type of knowledge may have caused the teachers to form unexpectedly high expectations concerning program impact and that these expectations were not met at post intervention, leading them to rate the children more harshly. Moreover, Weissberg, Gesten, Carnike, et al., (1981) suggest that relying on teachers' perceptions as the sole measurement of behavioral adjustment makes it difficult to isolate rated gains reflecting "actual" improvements in trained children's behaviour from the possibility that the teachers became more "accepting" of the children and their behaviours. Thus, the ambiguous findings concerning program impact on behavioral adjustment are difficult to ascertain. Gesten, Rains, Rapkin et al. (1982) addressed this issue, when they introduced their follow-up measures. Although post intervention teacher raters were not blind to the different conditions, follow-up teachers were unaware of the treatment conditions. A comparison of the ratings obtained from the two sets of teachers indicated that the follow-up teachers perceived trained children more favourably than the immediate post intervention teachers.

Generalization Effects

Gresham (1985), Coleman et al. (1993), and Ogilvy (1994) contend that one of the biggest failures of social problem solving evaluations

efforts, concerns the lack of generalization effects. Such effects can occur within a variety of contexts and results may not be seen immediately. Gresham (1985) indicates generalization effects embody four different aspects: 1) Time, where changes across time may indicate that the skill level was maintained; 2) Tasks, where the skills taught in one situation are performed in a novel (untrained) situation; 3) Setting, where changes across settings may indicate that the skills have been applied to a variety of different settings; and 4) Behaviour, where trained children "engage in behaviours that were not specifically trained but are thought to be related to the trained behaviours" (Hughes & Sullivan, 1988, p. 172).

Whether or not generalization occurs may be influenced by the fact that many of these programs are implemented for short periods of time (Denham & Almeida, 1978; Weissberg & Gesten, 1982). Some programs are only implemented for eight or nine week periods (Alvarez et al., 1982; Olexa & Forman, 1984; Yu et al., 1986), others are implemented for 12 weeks (Weissberg, Gesten, Carnike, et al., 1981) and still others are implemented for 16 weeks (Weissberg, Gesten, Rapkin et al., 1981). Short term implementation periods may conceal potential generalization effects across behaviours and tasks. For example, changes in teachers' perceptions of children's behavioral adjustment may not have been evidenced, because teachers were not given enough time to observe whether or not changes in the children's behavioral repertoire were actually occurring. However, it is probably more appropriate to contend that it was the children who were not given enough time (from pre-test to intervention to post-test) to incorporate these newly taught skills into their behavioral repertoire. Gesten and Weissberg (1986)

suggested that the trained children may need several months of experience with these newly acquired skills before they could exhibit the kinds of behavioral changes often measured through teacher rating scales. This means that while children gain cognitively even when exposed to a short-term program, the duration may be insufficient for them to display immediately perceivable changes in their behaviours. However, given more time these children should show a change in their behavioral adjustment despite the program's short duration. (Gesten & Weissberg, 1986).

Short term programs may also have an impact on generalization effects across time. It is possible that trained children do not have sufficient time to assimilate these newly acquired skills into their behavioral repertoires because they were not given sufficient opportunities to practice these newly acquired skills (Coleman et al., 1993; Gesten and Weissberg, 1986). Once these programs had been delivered, the children were not provided with additional reinforcement or "booster" activities to reinforce the material they had been taught. Constant review of the material, either through booster activities or reintroduction of the program, would provide one way of ensuring that generalization effects occur across time; acquired skills would therefore be maintained over an extended period of time (Weissberg & Allen, 1986; Weissberg, Caplan, & Howard, 1991).

In response to these limitations, Battistich and colleagues (Battistich, Elias, & Branden-Muller, 1991; Battistich, Solomon, Solomon, & Delucchi, 1990; Battistich, Solomon, Watson, & Schaps, 1989; Solomon, Battistich, Delucchi, & Solomon, 1989; William & Flora Hewlett Foundation, 1991) and Elias and Weissberg (1989) have provided evidence suggesting that skill maintenance can be achieved if trained students are

repeatedly exposed to program material. For example, Battistich and colleagues have produced several reports evaluating the effectiveness of a program aimed at enhancing elementary school children's prosocial behaviour.

The Child Development Program (CDP) is an elementary school program that was developed for children in grades kindergarten to grade six. The program's main objective was to enhance and develop prosocial behaviours in children. The complete program consisted of a literature and language arts based curriculum in which basic problem solving skills were taught by their regular classroom teachers. The curriculum was supplemented by what the authors called "collaborative activities", or small group tasks that provided the children with a variety of opportunities to apply their cognitive knowledge to everyday school tasks and problems. The authors hypothesized that this combination would facilitate problem solving skill acquisition and thus produce smooth social interactions between children. Although no mention was made concerning how the curriculum was to be administered (i.e. the number of lessons per week, how long each lesson was), the authors did indicate that the material was to be totally integrated into the children's regular day to day school activities.

The program was first implemented in 1982, in a suburban middle class community. The program material was disseminated to all the children; special "at- risk" populations were not specifically selected. Evaluation efforts were concentrated on one cohort of children who were followed longitudinally for five years; the children were first exposed to the program when they entered kindergarten and they were followed until they reached the end of grade four. The original sample was comprised of students from 6

different schools, 3 schools received the program, and 3 schools did not. Although data was collected for several hundred students, only 133 students had complete data sets for the five different evaluation years.

The children were evaluated with a variety of measures every spring. Problem solving knowledge was measured through an interview consisting of three hypothetical role play situations representing peer conflict scenarios which were administered to kindergarten, second, and fourth grade students. A second interview consisting of another set of hypothetical role play situations, representing object acquisition and peer group entry scenarios were administered to first and third grade students. Responses to each of the interviews were coded for the type and number of resolution strategies proposed, the type and number of potential consequences proposed, the types of outcome expectancies, and interpersonal sensitivity (see Battistich et al, 1989 for a more detailed description). In addition, teachers were asked to rate each child on a number of behavioral characteristics, four of which were combined to create a composite score of social competence. Furthermore, a peer acceptance sociometric measure was implemented in grades three and five, while a self report measure of perceived peer acceptance was administered to grades four and six.

Overall, the program was found to be an effective method of improving children's understanding of problematic situations. Trained children displayed an increase in the use of prosocial behaviours when challenged with interpersonal conflicts. Specifically, Battistich et al. (1989) found that program children developed a better understanding of what constituted a problem and that they developed a greater sensitivity and concern for

the needs and feelings of other children (Solomon et al., 1989). Program children also demonstrated a greater awareness of possible obstacles to their intended plan of action, which were also found to be more detailed than those provided by comparison children. Furthermore, trained children were better able to think about the consequences of their intended actions (Battistich et al. 1991). Program children were also more likely to suggest more thoughtful and sophisticated approaches to solving problems when compared to non-program children. These results were found during each of the spring testing phases throughout the five year investigation.

Solomon, Watson, Delucchi, Schaps, and Battistich (1988); Battistich, Elias, and Branden-Muller (1990) and Solomon, Battistich, Delucchi, and Solomon (1989) observed that program children were found to be friendlier, more supportive, and more helpful toward their classmates. Also, program children were observed to display more spontaneous prosocial behaviours towards each other than comparison children.

Additional findings (Battistich, Solomon, & Delucchi, 1990; William & Flora Hewlett foundation, 1991) suggested that the program also had an impact on measures of peer acceptance and peer likability, as well as on the children's own perceived likability. For instance, during annual testing, children who had been exposed to the program were more likely to be nominated by their peers as being their friends, they were more likely to feel accepted and liked by their peers, and they were also more likely to report that they were less lonely than comparison children. Despite such positive findings, the authors do report that some of their expectations were not met. For instance Solomon et al. (1990) report that there were no differences between the two groups on measures of self-esteem.

popularity, perceived social competence and school likability. Furthermore, the superiority of program children's social problem solving skills did not generalize to situations outside of the classroom as measured by small group cooperative tasks and behavioral simulations. However, the authors did report that the differences found between program and non-program children increased over time; trained children's problem solving superiority over non-program children increased the longer the children were exposed to the program material. These findings were replicated with a second cohort of children exposed to the program in kindergarten and grade one (Battistich et al. 1991).

Gesten, Rains, Rapkin, Weissberg, Flores de Apodaca, Cowen, and Bowen (1982) present their findings from an evaluation of a 9 week, 17 lesson social problem solving school based curriculum. Through this evaluation, they tried to determine whether such training would improve the children's interpersonal problem solving abilities, enhance their behavioral adjustment, and whether there was a link between social problem solving skills and adjustment (as previously found by Spivack and Shure, 1974). The program material consisted of teaching children problem solving skills like alternative solution thinking, problem identification, and consequential thinking. Dissemination of the curriculum was carried out by the classroom teacher through the use of videotaped stories, modelling, coaching, role play, competitive games, and small group discussions. 201 suburban second and third grade children, recruited from several different classes in two separate schools, were assigned to one of three groups: the first group received the full package, the second received an abbreviated version of the program (where only the video-tape

curriculum and modelling were used), while the third group did not receive any treatment. Social problem solving skills were evaluated through a pre/post design that included a problem solving interview and a behavioral simulation. Data on the number of alternative solutions, the effectiveness of the proposed solutions, consequential thinking, and recall of problem solving steps were collected. Teacher ratings of classroom adjustment and peer sociometric ratings were also obtained.

At immediate post- test, children exposed to the full program package were significantly better in problem solving skills than the other two groups. These children had gained significantly in alternative and consequential thinking, were more likely to offer effective solutions, and they were more likely to persevere in their attempts to solve problems. However, no differences were found between the three groups on a self report measure of adjustment. Interestingly, at immediate post-intervention, the teachers rated the control students as being better adjusted than either the full package program group or the abbreviated program group, and no changes in sociometric status occurred. However, at one year follow-up, not only did the trained children maintain their advantage in consequential thinking, but they also received higher scores on teacher rated adjustment and a change in sociometric status was evidenced (Gesten & Weissberg, 1986). It was hypothesized that these changes occurred because follow-up teachers were more likely to provide more accurate ratings of the children's behaviour because they were blind to the experimental conditions. Furthermore, they suggested that behavioral improvements would only be more noticeable after the program children have had time to practice their newly acquired skills. Nevertheless, the negative short term effects on sociometric status

and teacher rated adjustment led the authors to conclude that the program curriculum was too short, and that a longer program may be more beneficial because it would produce immediately noticeable changes in the students overt behaviours.

Elias and Weissberg (1989) provide a review of a social problem solving program that was implemented with young adolescents in grades five to eight. The Yale-New Haven Social Problem Solving project for young adolescents consisted of a 17 lesson curriculum through which regular classroom teachers taught adolescents the steps to competent problem solving. The implementation consisted of two distinct phases; a one year full program implementation phase, and a second year 12 session "booster" package with a sample of seventh grade children who had previously received the full package. This provided the researchers with a longitudinal sample where the impact of a two year implementation (6th and 7th grade) could be compared to a one year implementation (6th or 7th grade). In their review, Elias and Weissberg (1989) suggest that the program was effective because trained adolescents were more likely to utilize the problem solving steps to resolve their interpersonal conflicts, were rated as more adjusted by their teachers and were less likely to commit minor delinquent acts in comparison to adolescents who had not received any training. Furthermore, significant improvements were found to have occurred with those children who had been exposed to the program for two consecutive years. Specifically, those children with two years of training were found to have superior problem solving abilities when compared to control children, and those children who had received only one year of training.

Elias and Clabby (1989) implemented an intervention designed to teach children

social problem solving and social decision making skills, so that their transition to middle school would be less stressful. Their curriculum consisted of teaching children a) a core of thinking skills that would facilitate their understanding and identification of feelings in themselves and others, b) the steps to problem solving; and c) a set of "learning to learn" skills, focusing on increasing children's self control and group cooperation skills. In addition, application or practice opportunities were created from the children's everyday interpersonal or academic experiences. Regular classroom teachers disseminated the program material several times a week for approximately 4 months. A pre/post intervention design consisting of self report questionnaires and hypothetical role play situations assessed changes in problem solving ability. Results indicated that the program was an effective means of teaching children problem solving skills. For instance, when compared to comparison children, program children showed an increase in problem solving knowledge, a gain in interpersonal sensitivity, and greater initiative. Also, program children were better able to identify problems, perceive obstacles to their solutions and perceive the potential consequences of their proposed solutions. Furthermore, the quality of program children's proposed solutions were of a more realistic and prosocial nature.

In the following year, Elias and Clabby (1989) found that those children who had been exposed to the program were better able to cope with the stressors involved with middle school transition. For example, the authors analyzed the responses to a questionnaire comprised of 28 stressors most commonly associated with middle schools in a large New Jersey county (Elias, Gara, & Ubriaco, 1985). It was found that those

students who had not received training had greater difficulty coping with such stressors as peer pressure, academic demands, and pressure to participate in smoking and other substance abusing behaviours. Program children, on the other hand, were better able to cope and resist such pressures; prompting the authors to conclude that such differences were due to training (i.e. showing generalization effects). However, as these results were obtained through the use of a self-report questionnaire and not substantiated with any other assessment methods, caution in interpretation is warranted. No data was provided on whether or not this program had an impact on other adjustment variables such as teacher rated classroom behaviours and peer acceptance and likability.

Unreliable Measures Generalization effects, or their absence, may be influenced by the type of measures used in these investigations of program effectiveness. For instance, several investigations, starting with the early work of Spivack and Shure (1974), have used hypothetical role-play scenarios, as their primary measure of social problem solving knowledge and ability. Typically, children are presented with a scenario that is either read out loud or presented via pictorial cards. Usually, these scenarios depict an interpersonal conflict that is thought to be related to the child's own experiences. If the experimenter is interested in assessing the child's alternative solution generation ability, the story is usually presented without an ending. That is, the story is presented to the child up to the point where the conflict has been identified by the characters in the story. At this point, the story is interrupted and the child is asked to tell the experimenter all the different possible ways that the conflict can be resolved. The experimenter now has the opportunity to record the number of solutions generated, the number of variations of the

first solution offered, and judgements on the effectiveness of generated solutions is also possible. If the experimenter is interested in determining the child's consequential thinking ability, the story in its complete form is given to the child. That is, the story presented to the children includes not only the identification of the conflict, but also the actual solution the characters used to resolve their problem. At this point the child is asked to enumerate as many consequences as they can. The experimenter now has the opportunity to record the number of potential consequences generated and the number of variations of the first consequences offered.

The prolific use of role play scenarios as intervention measures has occurred primarily because they are less time consuming and more cost-efficient than naturalistic observations. Also, Ogilvy (1984) indicates that role plays have the added heuristic of being able to elicit certain responses that may not be forthcoming in direct or naturalistic observation measures. However, reviews on hypothetical role play measures warn against their use. For instance, Van Hasselt, Hersen, and Bellack (1981) examined the validity of using hypothetical role play tests for the assessment of social skills in children. When data obtained from role play tests were compared to several criterion measures, like naturalistic observations and teacher and peer rated measures of interpersonal behaviour, they were unable to detect a relation between the role play measure and the other criterion measures. Of particular importance is the finding that role play measures were completely unrelated to naturally occurring behaviours. Based on these findings, Van Hasselt et al. (1981) concluded that role play tests are not valid measures of children's social skills because they have no predictive capability. Data gathered from role play tests had no impact on

subsequent teacher ratings of the target child's behavioral adjustment. In other words, there was no relationship between the target child's responses (i.e. what they would do in certain situations) acquired in role play tests and their level of behavioral adjustment as rated by their teachers. Gresham and Elliot (1984) concur and suggest that such measures would not be valid measures of social skills training impact as they are not capable of predicting the degree to which these behaviours will be performed in different and more natural settings.

In response to these criticisms, several investigations have utilized "behavioral" or simulated situations as a means of determining training impact. Krasnor and Rubin (1981) suggest that this is a promising alternative to role play and naturalistic observations, because simulated situations are in reality a combination of both assessment approaches. They and others (e.g. Vitaro and Pelletier, 1991; Tisdale & St. Lawrence, 1986) suggest that these measurement devices are advantageous because they have the potential to elicit more naturally occurring behaviours as subjects are directly confronted with a "real emotion- arousing conflict situation" (Vitaro & Pelletier, 1991 p. 513) that resembles real life experiences. At the same time, these situations also allow for a greater amount of experimental control over the goals and task demands (Krasnor & Rubin, 1981). The use of these situations for measuring program impact enables data collection to be done "in a more standardized setting, so that testing conditions are similar across subjects, and at the same time as realistic and natural as possible (Krasnor & Rubin, 1981; Vitaro & Pelletier, 1991).

Simulated situations are of particular importance in social problem solving

research, because they provide one method through which generalization effects can be demonstrated. For example, Weissberg and colleagues (e.g. Weissberg, Gesten, Carnike, Toro, Rapkin, Davidson, and Cowen 1981; Gesten, Rains, Rapkin, Weissberg, Flores de Apodaca, Cowen, and Bowen 1982; Weissberg, Gesten, Carnike, Toro, Rapkin, Davidson, and Cowen 1981) incorporated behavioral simulations in all of their investigations of program effectiveness. Children were told that they would receive money if they would go into the next room and get a black marker. An experimenter-confederate was stationed in the situation room and was in the process of using the black marker, when the target child entered the room. The confederate's primary role consisted of providing different obstacles to the child's various requests for the black marker. Through these simulations, the authors concluded that trained children had learned the problem solving skills and that this training had in fact generalized across situations, as the created conflict was novel and the children had never been exposed to such conflicts during their in-class training.

Similar situations have been implemented in other investigations, and for the most part these effects have been replicated. However, Alvarez, Cottler, and Jason (1982) as previously noted, were unable to detect any significant differences between trained children and control children, when social problem solving ability was measured through a behavioral simulation. Although their simulation was similar to the one used in the Weissberg investigations, they concluded that the situation did not represent real life peer interactions. Accordingly, the authors suggested that these simulations should use peers as the confederate, as their use will enable the creation of a more "real life" peer conflict.

Vitaro and Pelletier (1991) compared hypothetical role play scenarios with behavioral simulations, in their effort to determine which of the two assessment techniques would provide a more accurate depiction of naturally observable social problem solving behaviours. They presented a sample of 57 maladjusted and 57 well-adjusted (see Vitaro & Pelletier, 1991 for a description on sample selection) first and second graders with a series of videotaped hypothetical role play stories, and asked them to relate to the experimenter how they would react to the same-sex peer provocations shown on screen. These children were then exposed to three different peer confederate simulated provocations. Their analysis revealed that no differences were found between the maladjusted and well-adjusted groups' responses to the videotaped hypothetical situations. Differences between the two groups, however, did occur when verbal and behavioral responses to the actual conflict scenarios were coded. The maladjusted children behaved more negatively towards the peer confederate in the simulated provocations than the well-adjusted group who displayed more prosocial behaviours. Specifically, the maladjusted group were more likely to display physical actions and less likely to produce verbally assertive responses when compared to the well-adjusted group. Based on these results, which have been replicated by Pelletier, Vitaro, and Coutu (1992), the authors concluded that the assessment of actual social problem solving behaviours may best be obtained through standardized behavioral simulations that can generate a "level of emotional arousal similar to the ones generated in day to day social problems" (Pelletier et al. 1992, p. 33). Thus, if one is interested in determining the skills and strategies a child would actually use in a conflictual situation, behavioral simulations seem to be the best

assessment techniques currently available.

Targeting the wrong type of information The implications that can be derived from Vitaro and Pelletier's (1991) investigation lead us into the second reason as to why generalization effects in social problem solving interventions may not be forthcoming, namely, the inadequate use of assessment devices. If simulated behavioral techniques do in fact provide more accurate depictions of naturally observable behaviours, then their use should also provide a more accurate depiction of what D'Zurilla and Goldfried (1971) labelled the "transfer of skill training" phenomenon, a generalization effect that occurs across different situations, and which has been purported to have occurred in a group of evaluation efforts undertaken by Weissberg and colleagues (1981, 1981, 1982), and Alvarez, et al., (1982).

Given the premise that behavioral simulations are more likely to depict naturally occurring behaviours, and thus provide a truer depiction of the "transfer of skill phenomenon" then, the possibility exists that such generalization effects have not been adequately assessed in any of the investigations previously described (Alvarez, et al., 1982; Gesten et al., 1982; Weissberg, Gesten, Carnike, et al., 1981; Weissberg, Gesten, Rapkin, et al., 1981). This presumption arises from the fact that not one of these studies actually looked at whether the children were applying these skills in their everyday experiences. Instead, conclusions regarding generalization effects across situations and tasks were based on scoring procedures which had only coded the number of effective and relevant alternative solutions that children generated after they had received treatment (Tisdale & St. Lawrence, 1986). If it can be assumed that a discrepancy between what

people say they will do in certain situations and what they actually do in those situations exists (Coleman, et al., 1993; Tisdale & St. Lawrence, 1986), then similarly, it can be hypothesized that learning the concept of brainstorming and/or consequential thinking does not automatically mean that a) the individual has acquired any of the other skills taught in a curriculum or b) that these skills will be applied in their everyday experiences (Caplan, Weissberg, Groeber, Sivo, Grady, & Jacoby, 1992). Thus, obtaining records on the number of solutions children are capable of generating in a given context does not automatically mean that the acquired skills have indeed transferred to other situations. Using behavioral simulations, then, as a means of obtaining records on the number of alternative solutions generated, represents a misuse of a potentially valid measure. In this way, the technique becomes unreliable and thus an inadequate measure of generalization effects across different situations. By using behavioral simulations in this manner, no information regarding whether or not children use the skills to resolve their "real life" interpersonal conflicts is accessed. Furthermore, the relationship between what children say they will do and what they do in actual situations becomes impossible to substantiate. One way of accessing this type of information is through the use of behavioral simulations, so that other skills are coded at the same time as records on the number of alternative solutions are obtained.

Coleman et al. (1993) suggest that behavioral simulations may be the one method useful in differentiating between how children say they will perform in a given situation and how they actually do perform. In their review, they report that only two studies actually measured children's actual skill application through the use of behavioral

simulations and that in both of those studies, trained children displayed increases in their skill use more so than the control children. If the results from these studies are combined with those generated by Vitaro and Pelletier (1993), then it can be hypothesized that behavioral simulations can make a substantial contribution to social problem solving training evaluations. These measures, if used to code specific behaviours and not just the number of alternative solutions generated, can potentially provide a truer and more complete depiction of skill acquisition and application; providing possibly "the single most important evidence of social competence" (Tisdale & St. Lawrence, 1986). Based on these findings, the present study will adopt the hypothesis that behavioral simulations can provide a more accurate depiction of children's actual skill application. Thus, children's verbal and behavioral responses will be coded to determine if they are in actuality applying these learned social problem solving skills to resolve the conflictual situations embedded in the behavioral simulations.

Program implementation: Need for documentation Another potential limitation concerning conclusions regarding the effectiveness or ineffectiveness of social problem solving training programs, involves the lack of data on how the program was implemented and which components were used most often within the training environment. Recently, there has been a growing consensus in the literature on the need for gathering information on how the program was implemented to its target audience (Dehar, Casswell, & Duigan, 1993; Price & Smith, 1985; Weissberg, et al., 1991). It is possible that social problem solving programs may have failed to produce expected changes in children's behaviour due to a multitude of factors that had nothing to do with

the program components themselves. Improper implementation by trainers, infrequent use of a training technique, and/or the infrequent use of reinforcement activities are among some of the factors that may have had impact on program efficacy, and yet they are not under the specific control of program developers. Without such information it is impossible to make clear cut conclusions about the effectiveness or ineffectiveness of particular social problem solving training programs (Dehar et al., 1993; Scheirer & Rezmovic, 1983; Weissberg & Allen, 1986). McGrew, Bond, Dietzen, and Salyers. (1994) indicate that research on program effectiveness of specific mental health services, similar to social problem solving interventions, have been seriously circumscribed by the scarcity of documentation on the way program components have been implemented and utilized. In the social problem solving literature, some investigators have indicated that such information was obtained, and yet no description concerning that part of the evaluation was provided (Spivack & Shure, 1982; Weissberg et al., 1981).

In the evaluation literature, a distinction has been made concerning two different facets of implementation information that can be gathered. Formative evaluation's main purpose is to collect information in the early stages of implementation so that the information gathered can be used to further develop and improve the program content before the program becomes fully integrated into the targeted environment. Process evaluation, concerns itself with providing specific information on the degree to which program components have been implemented according to the original design specifications (Dehar et al., 1993). Price and Smith (1985) indicate that the latter is descriptive in nature and that its main function is to aid in interpreting program outcomes.

Also, information gleaned from process evaluation facilitates future endeavours, in that it provides prospective program designers with an understanding of the multiple factors that may influence program outcomes (Dehar, et al., 1993).

In general, when a process evaluation is utilized to assess implementation, several distinct areas of information are looked at. For instance, Leithwood and Montgomery (1980) have indicated that it is important to look at the trainer's own behaviour when in the process of teaching the students. This includes the trainer's use of the program material, the specific techniques a trainer uses to help children learn the material, and the different types of material a trainer uses to facilitate learning (Price & Smith, 1985). Similarly, it is also important to pay attention to the recipient's own participation in the learning experience. This includes looking at the recipients' receptivity and any and all mental and physical acts they may engage in to further assimilate the information (Leithwood & Montgomery, 1980; Price & Smith, 1985) such as actively using available resources. Information of this kind can be obtained from a variety of sources, including direct observation, interviews, questionnaires, and school records. Although, each of these sources has its own advantages and disadvantages, the information obtained can be used to document and analyze the way in which the program works in practice which invariably will lead to a greater understanding of the different facets involved in program evaluation. The present study will attempt to gather some data on program implementation. Specifically, the present study will try to determine which "booster" activities are most often being used by the children and/or teachers, whether or not role play scenarios are used, to assist the children in learning the material. Other questions ask

whether or not some of the lessons have been re-taught, and if the problem solving corners have suitable material (see method for a description of the intervention).

Conclusions

In conclusion, social problem solving interventions are effective in that they do produce changes in children's cognitive knowledge. Trained children tend to generate more alternative solutions and these solutions have been found to be more relevant to the encountered conflict scenario when compared to responses generated by untrained children. These same programs have shown inconsistent patterns of behavioral changes. This inconsistency may be due to a variety of factors. In general, the lack of evidence concerning generalization effects across time and situations seems to be the biggest contributing factor accounting for these equivocal findings. Several reasons may account for the failure to detect generalization effects. First, in a majority of the investigations, the training programs were utilized for short periods of time and no concessions were made concerning the incorporation of reinforcement or booster activities. Gesten and Weissberg (1986) suggested that changes in the children's behaviour would only be noticeable if the children had several months of experience with their newly acquired skills. This assumption suggests that constant review of the material, either through booster activities or through the reintroduction of the program, would provide one way of ensuring that generalization effects occur across time. Second, the assessment measures used are unreliable, either because they are not providing an accurate measure of the children's actual knowledge, or because they are not being used in the appropriate fashion. Finally, the effectiveness of a training program may also be threatened by extraneous

variables not under the direct control of program designers. In some cases, observers may be biased, trainers may not be adequately prepared or the recipients may not be using any of the resources available to them. Information on these and other issues relevant to program implementation are important to obtain if any concrete conclusions are to be made concerning program effectiveness. Outcome variables are no longer the only measure of program efficacy.

The Present Study

At the request of, and in conjunction with, the research committee of the "Children Learning for Living" program, the present study was designed to evaluate the impact of a social problem solving training program (see method section for a description).

In an effort to evaluate the impact of this problem solving program, the present study attempted to address several of the limitations previously cited. Recall that many of the studies previously cited were unable to detect generalization effects because of a variety of issues. These include: the use of a program for a short period of time; a failure to use blind coders; a failure to use reliable measures; the lack of data concerning actual skill application; and the lack of data concerning program implementation. In an effort to document program impact, the present study attempted to address some of the limitations previously listed.

Recall that one of the biggest problems encountered in this type of evaluation concerned the lack of generalization effects across time and tasks. Weissberg & Gesten (1982) suggested that the absence of this information may be accounted for by the fact that many of these programs were implemented for short periods of time. Furthermore,

Weissberg et al. (1991) suggested that once these programs are terminated, no provisions were made concerning the reinforcement of these skills across the remaining school year. Elias and Weissberg (1989) addressed this issue and provided evidence supporting the need for continuous skill reinforcement either through the implementation of booster activities (Elias & Weissberg, 1989) or through the reintroduction of the entire curriculum the following year (e.g. Battistich, 1989).

The present study addressed this limitation in a similar manner. The conflict management program currently under study was re-implemented to those students who had received the program the previous year. Despite the fact that the curriculum was only implemented for six weeks, continuous reinforcement of the material was provided throughout the year through a variety of booster activities (i.e. six posters, problem corner, and worksheets).

With the current program's re-implementation, the present study's first purpose was to provide information concerning the long-term impact the current program may have had on student's problem solving ability. Specifically, the present study attempted to determine whether the continued reinforcement of program material, aided the students in maintaining their current skill level.

Accordingly, it was hypothesized that, relative to a no treatment Comparison group, those students receiving the Conflict Management curriculum would demonstrate superior cognitive problem solving skills. Second, a related hypothesis, assumed that differences in students' problem solving abilities would emerge when comparisons between the two program groups (i.e. two years of program implementation, one year of program

implementation) would be scrutinized. A third hypothesis, concerns the longitudinal impact the Conflict- Management curriculum had on the students. It was hypothesized that differences in students' social problem solving skills ability would arise after having received the intervention for the second time.

Another potential explanation accounting for the lack of generalization concerned the fact that many investigations of this type had used either unreliable measures such as role play tests (Van Hasselt et al., 1981) or behavioral simulations to target the wrong type of information (i.e. number of alternative solutions). Furthermore, few, if any, of these investigations actually looked at trained children's skill application (Coleman et al., 1993). Some (e.g. Krasnor & Rubin, 1984; Vitaro & Pelletier, 1991) believe that behavioral simulations may be one of the most useful methods for relating what a child says he will do and what he actually does.

Based on these findings, the present study's second purpose was to determine whether or not trained children actually applied these social problem solving skills. Students' skill application were assessed through two standardized behavioral simulations specifically constructed to measure the students' use of the specific program material. Accordingly, it was hypothesized that students who had been exposed to the program curriculum would apply the skills they had learned in behavioral contexts, and that the use of these skills, as demonstrated in a behavioral simulation, would be superior to the skills of students not exposed to the program. A fifth hypothesis stipulated that the use of these skills by program recipients, as demonstrated in the simulations, would be superior to the skills of students not exposed to the program curriculum.

In order to achieve these goals, the present investigation utilized a multi-method assessment strategy. Specifically, students were asked to complete several self-report questionnaires that tapped the students' attitudes towards conflict, their typical responses towards conflict and their specific knowledge of the curriculum material. Students' skill application was assessed through two standardized behavioral simulations specifically constructed to measure the students' use of the specific program material. Teachers were asked to complete a rating scale measuring the children's prosocial behaviour.

Unfortunately, the teachers who completed the rating scales had knowledge of the experimental conditions. However, unlike other investigations, teachers were not asked to rate the children's adjustment level. Instead, teachers were asked to note what types of prosocial behaviours children from their class were more likely to display. Teachers also completed a questionnaire on the implementation and utilization of program components.

Method

Subjects

Participants were drawn from five urban middle-class, elementary schools within the Ottawa area. The "Children Learning for Living" research committee specifically chose the five schools selected for this study, which were matched on the basis of how similar they were to each other in terms of parental income, the number of ESL students attending the schools, school size, subsidized housing, and primary/junior test results (see Appendix A for the information provided by the participating school board). Of the five schools participating, three schools were of a low to moderate ranking on these six variables, whereas two schools were of a moderate to high ranking.

Originally, 184 students in grades 5 (mean age = 11) and 6 (mean age = 12) participated in the present study. Out of this sample, it was necessary to drop thirty-five students from the analysis because classification into one of the two program recipient groups was not possible. That is, due to the unavailability of mobility data, it was not possible to ascertain whether these particular students had a) ever received the program material before and just not participated in the previous years' evaluation or b) they were new to the school and thus had never received the program curriculum. The remaining sample, therefore, consisted of 149 participants. These students were assigned to one of three groups based upon the year at which they first received the intervention program (the groupings were based upon the schools from which they were recruited). Group 1 (follow-up) consisted of a total of 42 students (8 boys and 11 girls in grade 5 and 10 boys and 13 girls in grade 6); all of whom had received the training program for two consecutive years. Because these students had participated in a similar investigation the previous year (see Astri, 1996), baseline data at two points in time were available to the current researcher for longitudinal comparisons. Group 2 (new program school) consisted of a total of 42 students (8 boys and 15 girls in grade 5 and 13 boys and 6 girls in grade 6); all of whom had received the training program for one year. Because these students had participated in a similar investigation the previous year as a comparison group (no intervention), baseline data at two points in time were available to the current researcher for longitudinal comparison. Group 3 (Comparison) consisted of a total of 65 students (12 boys and 17 girls in grade 5 and 23 boys and 13 girls in grade 6) all of whom received no training in the conflict resolution curriculum and served as a non-equivalent

comparison group. A parental consent letter was sent home, with the students, to the parents or guardians informing them of the project and requesting permission for their child's research participation. Program and Comparison schools were each sent a different letter of permission (see Appendix B for an example of the parental consent letters).

Design

A quasi-experimental, delayed intervention crossover design was conducted (Price & Smith, 1985). Figure 1 presents a graphical representation of the present study's design. Once an intervention program has been created, it is not possible to deny potential recipients program participation. Instead, one can delay the implementation for some of the recipients. A select number of recipients were chosen for immediate program implementation for "pilot" testing. Those recipients not chosen for the immediate implementation were placed on a "waiting list". After a few months, the waiting list recipients, were also exposed to the program. Thus, in reality, both groups received the intervention, but at different times. This design allowed the present study to collect data at three different points in time, because, all the recipients regardless of which group they belonged to, were evaluated on all the outcome measures. For instance, all the recipients were evaluated before the intervention was implemented -- (pretest 1). After the pretest, the immediate intervention group received the intervention while the waiting list (delayed intervention) group did not. After the intervention had been presented to the first group, a post-test assessment was conducted with both sets of recipients --(post-test 1 -- immediate intervention group / pretest 2 -- delayed intervention group). At this point, the delayed intervention group also received the intervention. After the intervention had been

Figure 1 A delayed Intervention design in which group 2 serves as a control, then as a second experimental group. An additional comparison group is added to the design.

implemented with the delayed intervention group, a third round of testing began (post-test 2 - immediate intervention / post-test 1 - delayed intervention group).

Training Program Description

Over the last twenty years, the Ottawa Board of Education has utilized a program, in a variety of different schools, called "Children Learning for Living". The program's main objective is to help children develop and strengthen basic problem solving skills in elementary school children, so that they "cope constructively with their everyday emotional and social problems" (Legg, 1995). This program was developed on the basis of those programs developed and implemented by Weissberg and colleagues (1981, 1981, 1982). An evaluation of the fourth grade curriculum (cited in Silverman, 1995), which taught students basic problem solving steps, revealed that even though the students were acquiring the problem solving knowledge, they were not applying these skills in their everyday problematic experiences. These findings led the research committee at the Children Learning for living office to design and implement a new program that would teach the same skills and include activities specifically created to reinforce these learned skills.

"A Problem Solving Approach to Conflict Management" (Silverman, 1995), is an outreach program developed from the "Children Learning for Living" curriculum. At the time of the evaluation, this program had entered its second year of implementation in those schools that had not as yet, received the entire Children Learning for Living Curriculum. Among its' many objectives, the program's primary purpose is to encourage students to use constructive and non-violent strategies to handle and resolve their own interpersonal

problems and conflicts.

The conflict management program revolves around a logically sequenced, six lesson curriculum designed to teach students the knowledge and skills necessary to resolve their interpersonal problems in a calm, non-violent manner. Specifically, the curriculum is composed of six units (described briefly in Table 1), (a) Calming Down ideas, (b) Identifying and expressing feelings in themselves and others, (c) What is conflict and some constructive ways to handle conflict, (d) Further ways to handle conflict, (e) Brainstorming, and (f) Learning the steps to handle a conflict.

Through this curriculum, the students are taught that there are a variety of different methods available to resolve their conflicts peacefully. The curriculum material is taught by the students' regular classroom teachers, who adopt the standardized curriculum which is supplemented by various reinforcing activity work sheets. Role play, modelling and coaching are among the various ways in which the students acquire the information. Role Play activities consist of having the children enact a conflict scenario so that the children can learn the steps to problem solving, while they are play acting. Role plays are also used as practice opportunities for the children and teachers are encouraged to create these opportunities from a variety of conflicts that have already occurred between the children. Coaching is used by the teachers when the children are discussing the various problem solving concepts. During these discussions, teachers coach the children by providing them with prompts concerning the various problem solving strategies and concepts. Modelling requires the teacher to use the curriculum skills in her/his interactions with the children so that the children can observe the use of different skills in

different situations, so that they too may apply the skills in different situations. In addition, there are six posters (see Appendix C) accompanying one or two of the lessons and each one highlights the concepts and procedures introduced to the students. These posters are often introduced with the accompanying lesson and once they have been introduced, are hung on the wall of the classroom, making them accessible to the students at all times. In this way, the posters become a reinforcement tool as both teachers and students can refer to the posters whenever a problem or conflict arises. Furthermore, a section of the classroom is cordoned off and made into a "problem solving centre", which also acts as a reinforcement activity because it helps to keep the problem solving steps in children's mind. Items contained in the problem solving centre include: a mirror, so that students can see their feelings change; a walkman and some relaxation tapes; a variety of storybooks, some paper and pencils, for doodling and writing messages to other students, a mailbox, so that the messages can be sent to the other students, work sheets on each poster, and items that are useful for "chance games", such as straws and dice.

The lessons typically take approximately 30 minutes of regular class time, and are given once a week for a six week period. Once the curriculum has been completed teachers are encouraged to reinforce the skills by integrating booster activities in daily class material throughout the rest of the year. Teachers typically teach lessons 2 to 5. Lessons one and six are taught by a mental health worker, providing the teacher with the opportunity to observe how a lesson should be implemented. Along with this observation opportunity, teachers are trained by the mental health worker through a two hour training workshop that is held at least once a year before the curriculum is to be implemented.

Additional support is provided by the mental health worker who provides extra training lessons and refresher courses throughout the year at the teachers' request. As well, support is provided through meetings of a "booster" committee (organized at the beginning of the school year), where discussions about school wide reinforcement activities take place.

The initial implementation of the conflict management program took place in the fall of 1994. In that same year, a program evaluation process was also undertaken (Astri, 1996). The evaluation tried to determine whether the program was effective in teaching students problem solving skills, so that they could resolve their conflicts in a peaceful and non-aggressive manner. The evaluation consisted of a pre/ post test design in which several paper and pencil self-report questionnaires measured changes in the students' problem solving skills, attitudes towards conflict, and their response tendency towards problematic situations (i.e. are children typically aggressive, passive, or assertive problem solvers?). In addition, teachers were asked to rate students behaviour and to rate school climate on a variety of indices. An interview measure was constructed to determine whether or not the students applied their learned skills in a problem situation that had arisen at recess (please see Astri, 1996 for a more detailed explanation of the assessment procedure). Results, obtained from Astri (1996) suggest that the program had a positive impact on students' problem solving knowledge. When compared to comparison schools, those students who had received problem solving training gained in their knowledge of curriculum taught skills. The present study's discussion section provides a more detailed description of other findings obtained by Astri (1996).

Table 1

Overview of the six units in the curriculum for the
"Problem Solving Approach to Conflict Management" program.

Unit	Poster	Description
Calming Down Ideas	Calming Down Ideas	Helps the students identify the different ways one can use to calm down. Focuses on teaching students that being calm means that they can think clearly.
Identifying feelings	Feelings Checkerboard	Helps students recognize and express feelings in themselves and others. Also "I Talk" poster students are taught to use the "I talk method for expressing their feelings.
What is a conflict?	Constructive ways of	Introduces the concept of conflict, and to handle conflict teaches them some constructive management strategies like: Taking turns, Chance, Apology and Explanation, and Walking Away.
Further Ways to handle conflict	Constructive ways of	More problem solving strategies are to handle conflict to handle conflict introduced: Compromise and Sharing, Distraction, Postponement, Talk it Out, and Get Help.
"Brainstorming"	Steps to Problem Solving	Teaches students the steps to problem solving, and introduces them to the concepts of alternative

Table 1 contd.

Overview of the six units in the curriculum for the
"Problem Solving Approach to Conflict Management" program.

Unit	Poster	Description
		solution thinking and consequential thinking.
Steps to handle a Conflict	Steps for Managing Conflict	Curriculum wrap up: material from previous lessons are brought together, and the students learn the steps of "Stop and think"; "Agree to Talk it Over"; and "Make a Deal".

Excerpts taken from the conflict management curriculum. Accompanying posters can be found in Appendix C

Assessment procedure:

Initial evaluation: The implementation of the Conflict Resolution program was first evaluated in the 1994-95 school year by Astri (1996). Using a pre- post-test design, students completed a battery of self-report questionnaires prior to training (Sept-Oct. 1994) and approximately six months after training (March, 1995). Changes in the students' problem solving ability, attitudes towards conflict, and their tendency to use peaceful problem solving solutions were measured. Questionnaire administration, which was conducted by two psychology graduate students (per class), took place in the students' classrooms. Students were instructed to read along with the administrator and to mark their answers down on the sheets provided. Upon completion of the questionnaire administration, problem solving interviews were conducted on a random sample of students. These interviews were designed to determine whether the students had utilized their problem solving skills to resolve a conflict that may have occurred during their recess period. In addition to the students' questionnaires, teachers were asked to rate the students' behaviours and their overall impression of school climate both before and after program implementation (see Astri, 1996 for a more detailed description of the materials and design). One year later, the present study, a follow-up to the first was conducted.

Present evaluation: Prior to the commencement of data collection, separate information meetings with principals and teachers were conducted (one for each of the five schools). During these meetings the assessment procedure was explained, all questions and concerns were addressed, and specific appointments for data collection were obtained. Specifically, the principals and teachers were informed that the procedure

would include two phases: questionnaire administration in the classrooms, and behavioral observation outside of their classrooms, and that the whole procedure would take approximately one week (per school).

Part A. Student Questionnaires. A battery of pencil and paper self-report surveys, adapted from the initial evaluation (Astri, 1996), were administered to those students for whom parental consent was granted. The questionnaires used in both evaluations included: A measure assessing whether children are aggressive, passive, or assertive problem solvers (The Children's Assertive Behaviour Scale -CABS; Michelson & Wood, 1981); and a measure assessing attitudes towards conflict (The Student's Attitude about Conflict Scale -SAAC; Jenkins & Smith, 1987). Baseline data collected at two different points in time (Sept. 1994 and March, 1995) were available for these three measures. Another measure, assessing whether the students had acquired curriculum-specific problem solving skills was adapted from Monker (1996) and also included in the student's questionnaire package (The Specific Knowledge Questionnaire; Daniels & Lybanon, 1995). Baseline data was not available for this measure.

At each school, questionnaires were administered and completed in the morning session on the first day of the prearranged data collection week. This administration took place in the students' regular classroom in two session: a half hour before recess and a half hour after recess. Splitting the session into two parts eliminated any fatigue the students may have felt during the early administration. Two psychology graduate students acted as facilitators; one read the questions out loud while the other walked around the classroom to answer questions and to ensure that students were on the correct question. Students

were instructed to read along with the administrator and to mark their answers on the pages provided for that purpose (see Appendix D for general instructions). Those students not participating were asked to work quietly on their own until the questionnaire session was completed. The questionnaires were completed in approximately one hour.

Part A: Measures – Student Questionnaire Package: (see Appendix D for General Instructions to students, and Appendix H, for debriefing on questionnaire material). Questionnaires were administered to all students in their classroom, a half hour before and after recess. Graduate students in psychology helped with questionnaires, by orally administering the material. Each questionnaire and its instructions were reviewed by educators and pilot tested to determine its suitability for junior grades.

The Children's Assertive Behaviour Scale. (Michelson and Wood, 1981; see Appendix E). The Children's Assertive Behaviour Scale (CABS) consisted of 27 scenarios depicting a variety of possible conflict situations in which students indicated on a Likert-type scale, what they would do if confronted with those situations. Responses ranged from the very passive (scored -2), to the very aggressive action (scored +2). The CABS generated a total score (total assertiveness score) and two subscale scores (a passive score and a aggressive score).

Validity and reliability data were generated from several studies using grades 4-6 students as subjects. Internal consistency for the CABS was in an acceptable range of .78-.80. Test-retest reliability established over a 4 week period ranged between .66-.87. Concurrent validity, was established through peer, parent, and teacher ratings of social skill as well as through behavioral observations. Convergent validity was established with

other measures of social competence. A homogeneous factor structure was determined through factor analysis. In addition, Astri (1996), provided support for the CABS factor structure and demonstrated that the CABS was suitable for use with the sample of students participating in this evaluation. Finally, Michelson and Wood (1981) demonstrated that the CABS differentiated between children with social skills training and children without such training. As this questionnaire was used in Astri' (1996) evaluation, baseline data collected at two points in time was available for groups 1 and 2.

The Student's Attitude about Conflict Scale. (Jenkins and Smith, 1987 - see Appendix F). The Student's Attitude about Conflict Scale was developed as a measurement tool for use in an evaluation of a peer mediation program in which the authors were involved. Its structure and the questions included in the measure were based upon several areas of impact incorporated in the program evaluation. These areas consisted of problem-solving knowledge, the development of communication skills, attitudes and behaviour toward conflict and violence, improved self-concept and personal outlook, peer relations, attachment to others, and commitment to school activities. As a result, a 32 item scale was constructed where students indicated on a 4-point Likert scale how much they agreed or disagreed with the presented statement. The measure was pretested on 1200 children within grades 4-12. One total and 4 factor scores were generated by this measure; a school attachment and commitment score, a self-concept and peer relations score, a conflict resolution and problem-solving score, and a perception of social skills score. Internal consistency for these factor scores ranged from .83 for the total score and .75, .72, .71, and .50 for the four separate factors respectively. No

validity data was available. As this questionnaire was used in Astri's (1996) evaluation, baseline data collected at two points in time was available for groups 1 and 2.

Specific Knowledge Questionnaire (Daniels & Lybanon, 1995; see Appendix G).

This questionnaire was designed to assess the students' cognitive social problem solving repertoires. Specific questions were adapted from several different sources: the program curriculum, and existing social skills measures (Monker & Daniels, 1995). The Specific Knowledge Questionnaire, a multiple-choice measure, was designed to ask students about the specific curriculum content taught in the classroom. For example, question 4 asked students "When you have an argument... which strategy would work best in trying to resolve a problem?" and Question 10 asked students, "Why should you calm down when you are angry with another person?" (see appendix F for more examples). When first looked at, the majority of questions appear to have multiple correct answers. However, as this questionnaire was specifically developed to ascertain which of the curriculum components these students were learning, the correct answers were those specifically found in the curriculum. So question 4, for example, had two potentially correct answers: a) taking a deep breath... and b) running away. Since the curriculum teaches that students should calm down and take a deep breath before approaching another person, the correct answer for this question was a) taking a deep breath, as it most closely resembled curriculum content. Those answers that most closely resembled the curriculum content would be assigned a numeric value of 1, whereas all other answers were assigned a value of zero. Summing up all the responses scored, yielded a total score indicating the amount of specific curriculum knowledge the students had acquired through training. Cronbach's

alpha, a measure of internal consistency, yielded a reliability coefficient of .78, indicating adequate reliability for the overall scale.

In an effort to determine potential underlying constructs, the 22 items on the questionnaire were further examined with a principal components factor analysis. Although, the unrotated analysis yielded 8 factors with eigenvalues greater than one (Stevens, 1992), these eight factors only accounted for 61.3% of the total variance in the scale; an amount substantially smaller than what Stevens (1992) would consider to be adequate (ie. between 70 to 75% of the variance should be accounted for by at most 4 factors). Furthermore, only four of the twenty-two items shared a communality value greater than or equal to .70 (Stevens, 1992). Such poor values indicated that a further analysis was unwarranted. However, it was decided that a varimax rotation with all eight factors would be performed and that those results would be used as a guide to construct other composite scores, based on the inter-relationships among the items. Cohen (1990), following the maxim that "simple is better" (p. 1306), suggested that the construction of composite scores using unit weights (ie. summing up the original scores from the items) may be better suited to "measure some concept...than the factor scores generated by a computer program" (p. 1306). Eight factor scores were produced through the varimax rotation and several of the factor loadings were found to be statistically significant at $p = .01$ (critical value based on 140 subjects was .434; Stevens, 1992, p.383). By using the factor loadings among clusters of items, five composite scores were created. Each composite was created by summing up the original scores for those items thought to be measuring the same construct. None of the composite scores contain overlapping items

(see Table 2 for a list of these composite scores and their items numbers). The five composite scores generated include: 1) Conflict knowledge and Social Problem Solving processes, indicating the students ability to identify conflict and use some of the processes in resolving that conflict; 2) Social Problem Solving Steps, indicating the students ability to identify the steps to problem solving taught by the curriculum; 3) Strategies, indicating the students ability to identify the various strategies available in the problem solving process; 4) Feelings, indicating the students ability to identify and express their own and other peoples' feelings; 5) Calming Down, indicating the students ability to understand importance of calming down before they approach the person they are angry with. No reliability or validity data are available. No baseline data was available for this questionnaire.

Part B: Actual Conflict Behavioral Simulations. (see Appendix I for simulation instructions, Appendix J for simulation debriefing, and Appendix K for evaluation debriefing). Upon completion of the morning questionnaire session, students' conflict management behaviours (i.e. skill application to conflict situations) were assessed via two behavioral simulations. As this technique was not available in the initial evaluation (Astri, 1996), no baseline data were available. These simulations began in the afternoon session on the first day of data collection and were completed within three to five days, depending upon the number of participating students within each school. This administration took place in a quiet room provided by the school. Students were removed from their classrooms in pairs by the experimenter. On the way to the simulation room, the experimenter queried the students to ascertain a) if they knew they were going to be

Table 2

Listing of Items and their corresponding reliability coefficients for each composite score derived from the Specific Knowledge Questionnaire

	Cronbach's alpha (α)
Total score items (1 - 22).	.78
Conflict Knowledge (items 1,2,3,14,17).	.32
Strategies (items 5,13,19,20,21).	.38
Social Problem Solving Steps (items 11,15,16).	.65
Expression of /Recognition of Feelings (items 6,7,18,22).	.48
Calming Down (items 4, 10)	.52

video-taped, and b) if they knew what kinds of tasks they were performing. This was done to ensure that the other students had not revealed the tasks. Upon reaching the door to the simulation room, the experimenter reminded the students about the video-tape and then separated the students; one student was asked to remain outside for a few seconds while the other student went in to the room with the experimenter. Once inside, the experimenter explained to the first student his/her task and left the room on the pretext that he/she had to make a phone call. Having exited the room, the experimenter then proceeded to explain to the second student his/her own contradictory task (eg. student one is instructed to remove books from a box and put them on a table; student two is instructed to remove the books from the table and return them to the box).

Approximately five minutes after the second student entered the simulation room, the experimenter returned to the room and stopped the task. The experimenter apologized for having given the students contradictory tasks and asked them to sit in specified chairs. The students sat side by side at a ninety degree angle formation with the table. Once the students were seated, the experimenter proceeded to explain the next task to them (eg. both students were given identical "LEGO" toys from which certain pieces had been removed and asked to construct them). Ensuring that the students understood their task, the experimenter once again left the room and returned five minutes later.

Upon completing the two behavioral simulations, the experimenter implemented a five minute free play session with the students by giving them a full box of "LEGOs". During the free play session the behavioral simulations (the two tasks) were explained to the students and questions were answered (see Appendix J for simulation debriefing).

Vitaro and Pelletier (1991) suggest that this type of debriefing is important as it allows the two students to "relate to each other on friendly terms" (p. 516). They hypothesized that this kind of debriefing has the potential to eliminate any negative feelings caused by the students participation in the simulations. Their hypothesis was supported by the fact that teachers, who were asked to observe children after assessments, reported no physical aggression occurred between any of the children in the Vitaro and Pelletier (1991) study.

It is important to note that at no time were the students left unattended. The experimenter was watching the students at all times outside the classroom so that any potentially violent confrontations between the students could be easily stopped before they escalated. Confrontations of this kind did not occur at all throughout the data collection period.

Reviewing a video-tape of the first weeks' behavioral simulations, the experimenter (and her supervisor) observed that the students were not motivated sufficiently by the tasks. The students did not regard the two tasks as particularly problematic, even though they were able to recognize the problems inherent in each task. To enhance the participatory nature of the subjects, the experimenter (and her supervisor) found it necessary to alter the conditions by making both simulations more conducive towards competitive behaviour (providing a basis for problems). Thus, in an effort to motivate the subjects, an offer of reward was introduced. In scenario one, each subject was (separately) informed that the successful completion of their task would result in the allocation of "points" towards an unspecified prize. In scenario two, both subjects were jointly informed that the best completed item warranted "points" towards the same

unspecified prize. Prizes were only allocated upon the completion of both simulations, and in each instance both subjects received a single prize.

The students' verbal and behavioral responses to the two scenarios were video-taped and coded after data from all five schools were collected. The Panasonic VHS video camera, hidden in a cardboard box (with a circular opening for the lens), was usually placed on a desk in an unobtrusive corner of the simulation room. Placing the camera in the box was not a real attempt to hide the camera (as many of the students pointed out), but rather an attempt to reduce its obvious presence. To further draw attention away from the camera, the experimenter turned the camera on before any of the students were brought into the simulation room. All students were aware that they were being video-taped.

Part B: Measure -- Actual Conflict Behavioral Simulations. (inspired by Vitaro & Pelletier, 1991; Pelletier, Vitaro, & Coutu, 1992. See Appendix I for instructions) This particular assessment technique was designed specifically for the present evaluation. As such it was a new measure and no baseline data were available. Pilot testing with both behavioral activities were attempted prior to actual data collection. The pilot test with 3 boys and 1 girl between the ages of 9 and 11 indicated that the planned activities were feasible, and that these activities were capable of eliciting children's spontaneous reactions in each of the simulations (Flapan, 1968).

After completing the student questionnaires, students were removed, in pairs, from their classrooms and brought to the "simulation room", where their conflict management/ Social Problem solving skills were evaluated. This was achieved through

the video-taping of their responses to two structured problematic situations. Both situations, presented to the students, had embedded within them, the potential for conflict due to the nature of the tasks. The students' tasks, therefore, became that of resolving the potential conflict or problem.

Both simulations were developed, based on the theoretical assumption that certain situations provoke conflicts between two (or more) individuals more often than other situations (Dodge, McClasky, & Freeman, 1985; Vitaro & Pelletier, 1991). According to Dodge et al. (1985) two of the most conflictual situations for children are A) Task interference: someone disrupts or destroys a current work in progress or B) Limited resource tasks: where two (or more) children compete for the available resources in order to complete a required task. The following behavioral simulations incorporated these two types of situations as a means of evaluating students' use of the program's curriculum content.

Scene 1: Misinformation - Task interference. The first situation had embedded within it, the potential conflict of task interference. This was achieved by having the two students receive contradictory information concerning the task they were to perform for the experimenter. That is, each student received a different set of instructions about their task requirements. For this to occur, the students were separated from each other at the beginning of the task.

The first student was told to go into the room with the experimenter, while the second student was asked to wait outside. Once inside the room, the experimenter proceeded to show the first subject a box (on a table in the middle of the room) that was

full of books. The experimenter asked the student to take the books out of the box and stack them on the same table. The student was also told that he/she could only take up to two books at a time in the process, but that they could stack them in any order they chose. This was done to ensure enough time for the second student to come in and interrupt the first students' task. Furthermore, the first student was told that he/she would only get "points" towards the prize, if all the books were visible on the table when the experimenter returned to the room. Once it was ascertained that the student understood his/her task requirements, the experimenter excused herself and left the room.

Outside the room the experimenter informed the second student that he/she was to go into the room and take the books off the table (same table in the middle of the room) and put them into the box located on the same table. The second student was further instructed that all the books had to be visibly inside the box by the time the experimenter returned to the room, in order for him/her to receive "points" towards the prize. Upon ascertaining that the second student understood his/her instructions, the experimenter sent the second student into the room. After a time lapse of five minutes the experimenter returned to the room and stopped the task, by asking the students if they had been able to complete their tasks and if they had helped each other. The experimenter also apologized for having caused the misunderstanding, saying that she thought that she would have been able to return in time to observe each student finish their own task. Following this apology, the experimenter asked each student to sit in the chairs positioned around the table and began the next task.

Scene 2: Limited resources task - missing pieces. The second situation had

embedded within it, the potential conflict of a limited resources task. This was achieved by having the two students construct a "LEGO" figurine carefully arranged, by the experimenter, to have much needed pieces from their individual boxes. In fact, each student was missing two essential parts, whereby the only way the students could build one of the toys, was, essentially through working together. Two sets of the same "LEGO" figurines were used. In one set, a wheel and a steering wheel were missing, while in the other set, a wheel and a helmet were missing.

Both students received an empty box with a picture of an astronaut and his car. They were told to build the figurine exactly the way it was pictured on the front cover of the box; the experimenter stressed the fact that only the front cover was to be copied. They were also informed that this was a timed task and that they would only get 5 minutes to complete the task in its entirety. In order for the students to collect their "points", they were informed that the figurine had to look (be built) exactly like the picture on the front cover of the "LEGO" box. Once the experimenter ensured that the students understood their task, each student was given a bag with pieces, told not to open them until the experimenter set her time watch, set her watch, and told the students they could begin. The experimenter then left the room and only returned after five minutes had elapsed.

Prior to the beginning of data collection, the experimenter decided that she would leave the room while the behavioral simulations occurred. The experimenter believed that having both the video camera and her presence in the room would influence the students' behaviour (ie. encourage them to act in a socially desirable manner). The present author had the opportunity to observe video-taped sequences courtesy of Vitaro and Pelletier

(1991). In these video-tapes the children's behavioral response appeared to be very prosocial. These prosocial behaviours may have been attributed to the fact that the experimenters were in the room with the children during the simulations. In order to reduce this possibility, no observers were used in the present scenarios.

Data Coding Originally, behavioral codes for these scenarios were developed from three separate sources: the program curriculum, a coding scheme adapted from Vitaro and Pelletier (1992), and the video-taped behaviours. Specific curriculum components adapted for the coding scheme included: Problem Identification, Calming Down, "I Talk", Brainstorming, strategies such as Compromise, Helping/Sharing, Taking Turns, Distraction, and Getting Help. Behaviours adapted from Vitaro and Pelletier (1992) included: Aggression, Aggression on Objects, Comments on Objects and other Subjects' behaviour, Demands, and Behaviours that were unrelated to the proposed tasks. From a preliminary screening of the first week of video-taped behaviours, a set of strategies not found in the curriculum were developed. These included Trial and Error, Continuing on with the task despite the problems encountered, Rationalizing the problems, Reaching over and Taking needed material and Physically Blocking the other subjects actions

Unfortunately, this coding scheme had to be re-worked, as many of the behaviours coded did not lend themselves to high inter-rater reliability; either because the behavioral events were unobservable (ie. they were extremely rare occurrences) or because a clear description of the behaviour was not possible. As a result of extremely poor inter-rater reliability, a new coding scheme was established (please see Appendix L for a complete

description of the varying behavioral categories). The new coding scheme contained only those skills taught by the curriculum: Problem Identification, Calming Down, "I Talk", Brainstorming, strategies such as Compromise, Helping/Sharing, Taking Turns, Distraction, and Getting Help. As well, Aggression and Aggression on objects, adapted from Vitaro & Pelletier (1992) were retained. All other behavioral categories mentioned above were discarded (ie. Comments on Objects and other Subjects' behaviour, Demands, and Behaviours that were unrelated to the proposed tasks, Trial and Error, Continuing on with the task despite the problems encountered, Rationalizing the problems, Reaching over and Taking needed material and Physically Blocking the other subjects actions).

An event sampling recording technique was utilized to record the presence (yes, behaviour occurred, scored 1) or absence (no, behaviour did not occur, scored 2) of the students' behaviours in the two different scenarios. Event sampling was chosen as the preferred method, as time sampling would not have answered whether or not the students use the curriculum taught skills in their everyday behaviours. Also, the events themselves were constricted by the time allotted for each episode (ie. 5 minutes per task). Thus , the unit of measurement is the behaviour itself, "rather than the time interval imposed on the on the behaviour being studied" (Irwin & Bushnell, 1980, p. 178).

Along with this technique, it was decided that the problem solving process taught by the curriculum, would be divided into small separate component parts (ie. do they identify a problem, do they express their feelings, are they generating multiple solutions to the problem etc.). This meant that each behaviour had to have its' own specific definition of what constituted the occurrence or non-occurrence of the behaviour (see Appendix L.

for a complete description of the behavioural definitions). For instance, Problem Identification was coded as occurring if the coder observed the student(s) either verbally stating that there was a problem with the task (eg. "Hey, What are you doing ?" , "Hey I'm missing some pieces") or if their behavioral actions symbolized that they had noticed a problem with the task (eg. students were observed stepping back, with wide-opened eyes, looking intently at what the second student was doing, or looking intently through their "LEGO" pieces with wide open eyes, raised shoulders and a scrambling movement of hands through the pieces, as if they were making a mental list). A students' expression of personal feelings was coded as having occurred by the actual feeling expressed. For example, students' expression of Anger, Smiling and Laughing behaviour and Frustration were coded. Compromise, a potential solution to the inherent problems, was separated into two distinct categories: Verbally Suggested Compromise and Behaviorally Implemented Compromise. Verbal Compromise was coded as having occurred if the student(s) made a suggestion that they should work together, whereas Behavioral Compromise was coded as having occurred if the student(s) actually combined their task duties and worked together. Helping, another potential solution to the problem, was coded as having occurred, if the student(s) either suggested and/ or asked for help, or if they gave each other help (verbal prompting or physically showing how the pieces fit together). Brainstorming was coded as having occurred, if the student(s) were observed either suggesting two or more different potential problem solutions or physically implementing two or more strategies during the course of task completion. Students' aggressive behaviour was coded as having occurred if the student(s) were observed using

either verbal expressions or physical demonstrations towards the other student. Finally, Aggression on objects was coded for any observable physical demonstrations towards the objects themselves (ie. books or puzzle pieces being thrown around) (Vitaro & Pelletier, 1992). Calming Down, Distraction, and Taking Turns, although proposed for coding, were eliminated from any further analysis, as none of these behaviours were observed to have occurred during the two different scenarios (difficult to code these extremely rare phenomena).

Coding, of these behavioral variables, always began with the students' verbal or behavioral identification of the problem. So if only one student identified the problem, coding only occurred for that student. All other behaviours could then be coded, with one exception; it was decided that Brainstorming would only be coded after the entire episode had elapsed. This decision was made after ten different pairs had been coded, and it was found that the whole behavioral episode had to be seen before a complete count of the various solutions could be made. This way the observer could mark down what kind of solutions/strategies were generated, and if two or more different strategies occurred, Brainstorming could then be coded. This specification was introduced because it was found that the students often suggested or tried the same solution many times (ie. "We should work together", "We're supposed to do it this way", etc.).

A blind observer was trained with the revised coding scheme; training occurred for approximately two four hour periods, with a sample of 12 students (six pairs). Observer training was achieved through the simultaneous coding of pairs by both the author and the blind observer. For each pair, one episode was coded, and then agreements and

disagreements were discussed. Using ten pairs (20 subjects out of a sample of 121 students), overall inter-rater reliability ($\text{Total number of agreements} / \text{Total number of agreements} + \text{Total number of disagreements}$) for both scenarios combined was calculated to be 93%. Overall inter-rater reliability was also calculated for each separate scenario; inter-rater reliability for scenario # 1 was 91% and 92% for scenario # 2. Inter-rater reliability for the separate behavioral components was also calculated using Cohen's (1960) Kappa, where .70 was used as a statistical guideline for acceptable reliability. Table 3 presents the details of the inter-rater reliability analysis for the separate category. As seen, some of the variables fall short of the acceptable .70 reliability range, yet as these variables were specific components of the Conflict Management program material, they were retained for further analysis.

Part C: Teacher Questionnaires. During the student questionnaire administration session, teachers were given a set of questionnaires to complete at their desk. This package consisted of one School Climate questionnaire (Lam, 1989), and one general implementation/utilization questionnaire (Children Learning for Living Research Committee, 1995). The School Social Behaviour Scales: Self-Management subscale (Merrell, 1993) was also included in the teachers package, however, as this scale is used to measure student behaviour, each teacher received one questionnaire for each of the participating students in their classroom. All teacher questionnaires were completed in half an hour.

Part C: Measures -- Teacher questionnaires. Teachers received a set of questionnaires consisting of the School Climate Questionnaire (Lam, 1989). The School

Table 3

Inter-rater reliability coefficients for Behavioral Simulation Coding Scheme

	Misinformation Task	Limited Resource Task
	Kappa	Kappa
Problem Identification	.76	100% occurrence
Feelings	.69	.87
Brainstorming	.85	.77
Verbal Compromise	1.00	100% non-occurrence
Behavioral Compromise	.69	100 % non-occurrence
Helping	.62	.64
Aggression	1.00	.77
Aggression on Objects	1.00	.77

Social Behaviour Scales: Self-Management subscale (Merrell, 1993), and a general implementation / utilization questionnaire. Completion of all three questionnaires took approximately 30 minutes.

The School Climate Questionnaire (Lam, 1989; see Appendix M). This questionnaire was adopted from Astri's (1995) evaluation. Thus, baseline data for groups 1 and 2 were available. Lam (1989) developed this questionnaire to evaluate the impact of her peer mediation program. It was specifically designed to measure the changes in the student body's attitudes toward their school which may be accounted for by the school-wide implementation of a conflict management program. It was suggested by the author that the questionnaire may tap into subtle attitude and behaviour changes potentially occurring as a result of conflict management program implementation. As the instrument was purported to measure subtle changes, the authors noted that a comparison group is necessary in order to measure out changes that may be attributed to factors other than program implementation, such as: maturation and learning. For each item teachers were to indicate on a 4-point scale whether they "Strongly Agree", "Agree Somewhat", "Disagree Somewhat", or "Strongly Disagree" with each of the statements about the school environment. No reliability or validity data were available for this measure.

School Social Behaviour Scales: Self-Management Skills (Merrell, 1993; see Appendix N). This instrument was developed under two theoretical assumptions 1) that there is a need to measure social adjustment under two separate categories: teacher-related adjustment (adjustment related to teacher expectations of appropriate behaviours related to instructional settings and constraints such as following school rules). and peer-

related adjustment (adjustment related to the development of appropriate peer relationships and peer acceptance); and 2) that such behaviours can be further sub-divided into positive (social competence) behaviours and negative (anti-social) behaviours.

To this effect, the SSBS was constructed by pulling behavioral descriptors from such sources as the social skills and social competence literature, social skills training curricula, and existing social skills behaviour rating scales. The final scale consisted of 65 items describing a variety of behaviours that children may or may not have exhibited. Teachers are asked to indicate on a 5-point scale, where a rating of 1 signifies "never", 2,3,4 signify "sometimes", and 5 signifies "frequently", how often the child displays that particular behaviour. The survey generates two main scales: a Social Competence Scale (Scale A) and a Antisocial behaviour Scale (Scale B) each of which is further sub-divided into subscales. Scale A consists of 3 subscales: *Interpersonal Skills* composed of items describing those skills that are important in developing positive social relationships; *Self-Management Skills*, consisting of items describing social skills related to self-restraint, cooperation, and compliance; and *Academic Skills*, consisting of items describing competent academic performance. Scale B consists of 3 different subscales: *Hostile-Irritable*, consisting of items describing self-centred antagonistic behaviours; *Antisocial-Aggressive*, consisting of items describing overt aggressive behaviours towards others; and *Disruptive-Demanding*, consisting of items describing disruptive classroom behaviours. Scoring consisted of summing up the appropriate items in each scale leading to two total scores and 6 factor scores.

Reliability and validity data were obtained from a sample of teacher ratings of

1,858 students in grades kindergarten to grade 12 from 22 public schools in 18 U.S. districts. Internal consistency was high with a coefficient of .98 for the two main scales and coefficients ranging from .94-.96 for the six factor scales. Test-retest reliability established over a 3 week period was found to be moderate to high ranging from .76-.82 for the Social Competence scale and from .60-.73 for the Antisocial Behaviour scale. Inter-rater reliability was established by having regular teachers, special education teachers, and para-professionals rate the same randomly selected children. Coefficients ranged from .73-.83 for the Social Competence Scale and from .53-.71 for the Antisocial Behaviour scale. Content validity was established by correlating the items to either Scale A's or Scale B's total score. Item-totals for the Social Competence score ranged from .62-.82, and item-totals for the Antisocial Behaviours scale ranged from .58-.86. Concurrent validity was established with three other indices of social competence and social skills. Homogeneous factor structure was determined through factor analysis. Finally, Merrell (1993) demonstrated that the SSBS differentiated between learning disabled, "mentally retarded", and emotional/ behavioral problem children. The SSBS was also found to differentiate average children from the three above-mentioned groups, as well as from gifted students.

Due to time constraints and the inapplicability of some of the items, the author and various mental health workers decided that only one subscale would be utilized in the present research. Thus, all items from the Self-Management subscale, four items from the Interpersonal skills subscale and 3 items from the Hostile/ Irritable subscale (see Appendix N for a list of items) were selected for the present scale. These items described a variety

of behaviours teachers may have seen students engage in that were believed to be influenced by the Conflict Management program. The teachers were asked to indicate how often they observed students engaging in a particular behaviour. The frequency of these behaviours were to be indicated on a five-point scale with 1 (never) and 5 (frequently) as endpoints. The scale yielded three separate factor scores: Self-Management score, Interpersonal Skills score, and a Hostile/ Irritable score. As this questionnaire was not used in Astri's (1996) evaluation, no baseline data were available.

Teacher's Implementation/Utilization Questionnaire (Children Living For Learning Research Committee, 1995; see Appendix O). This questionnaire consisted of five open-ended questions designed to assess the degree of implementation and utilization of specific program components such as: resource material for the problem corner, the use of role play to help solve conflicts, and the use of booster activities in the classroom. Teachers were asked to answer the questions on the answer sheet provided to them. No reliability or validity data is available. As this questionnaire was not used in Astri's (1996) evaluation, no baseline data were available.

Results

The present study is based on a cross-lag pre-post design. Data was collected at three points in time (see Figure 1, pp. 52 for a description) for two separate cohorts. Such a design allows for three sets of comparisons. 1) Between group comparisons of children who had received 0, 1, or 2 years of programme collapsed across cohort. These comparisons are cross-sectional in nature. 2) Within group comparisons of subjects before receiving the programme, six months after the first intervention, and six months

after the second intervention. These comparisons are longitudinal in nature. 3) Within group comparison of subjects receiving the programme for the first time. This is a pre-post design and these analysis are found in Appendix Q. It must be noted that the following sections do not report those results pertaining to the Grade Independent Variable. For all analyses, Grade effects were non-significant, and are, therefore, not reported in the body of the results, but can be found in the appropriate Multivariate tables situated in Appendix P).

The following presents all the results in the ensuing chapters. Between subjects results are presented first. These results were obtained through several Multivariate Analysis of Variance which were performed on three different questionnaires. Between subjects results attempt to find differences between three groups (second year program curriculum, first year program curriculum, and no intervention) that may be attributable to the implemented intervention.

Within Subjects results have been divided into two separate kinds of analysis and are presented next. The first within subjects analysis was performed on scores obtained from those students receiving the intervention for two consecutive years. Through these results, an attempt was made to determine the impact two consecutive years of program implementation would have on students' cognitive Problem Solving abilities and attitudes across three different points in time: immediately before intervention, six months after the first intervention, and six months after the second intervention.

The second within subjects analysis was performed on scores obtained through a Pre-Post-test design performed on data collected from grade 5 and 6 students receiving

the program curriculum for the first time, regardless of year in which programme was first received. These analysis attempted to replicate the Pre-Post design utilized in Astri (1996) in an effort to determine the consistency of results obtained from the first time delivery of an intervention. These analysis are presented in Appendix Q.

Next, the results obtained through a behavioral observation paradigm are presented. Students from three different groups (second year program curriculum, first year program curriculum, and no intervention) were asked to participate in two different potentially conflict -laden scenarios. Their behaviours to these two structured situations was video-taped, and coded for the presence or absence of specifically taught curriculum based conflict management behaviours. These simulations and observations were used to determine whether or not students actually use these problem solving behaviours to resolve their everyday conflicts.

Finally, the results obtained from teacher responses to two questionnaires are presented. Teachers were asked to rate the frequency of prosocial behaviours they observed their students engaging in. These results were used to determine if the problem solving curriculum impacted on the students' classroom behaviour. Also, teachers were asked to respond to several open-ended questions concerning the implementation of / and use of certain curriculum components. The answers to these questions were used to determine if the program components were being implemented and utilized and potentially provide some reasons for why the intervention produced the acquired results.

Part A Student's Questionnaires

Preliminary Data Analysis: All dependent variables were examined (SPSS for

Windows 3.1), prior to analysis, to determine the accuracy of data entry, the entries with missing values and as a means of ensuring that the assumptions underlying Multivariate Analysis of Variance were met by the obtained data (see Table 4 for a listing of all the dependent variables). Each dependent variable was examined separately for each of the three program groups (Follow-up, N=42; New Program, N=42; Comparison, N=65).

This procedure exposed several cases within which missing variables existed. Tabachnick and Fidell (1989) suggest that the best corrective measure in this case is to replace the missing value with the group mean. They posit that replacing these values with the group mean is considerably the more moderate conservative estimate, because overall variance is not as greatly reduced with this technique, when compared to the reduction of variance produced with more conservative techniques (ie. inserting the overall mean or simple deletion of cases). As these missing variables were found to be a random set, scattered throughout the different variables tested, and since the number of cases with missing values did not exceed 5% of the group's total number of cases, each missing value was replaced by the group mean obtained for that variable.

A single case in the New Program group was deleted from analysis. The case was dropped because it produced a high number of missing values across the different dependent variables (excess of five percent of the cases's total responses). This reduced the available sample of this group to 41.

The assumption of homoscedasticity was found to be adequate when the Levene Test was employed. Furthermore, because this test is not very dependent upon the assumption of normality (SPSS: Base Systems Guide, 1993), a combination of histograms.

Table 4

Listing of all dependent variables used in screening and further Between Groups Manova analyses.

Childrens' Assertive Behaviour Questionnaire (CABS; Michaelson & Woods, 1982)

Total Assertiveness score^{*} - absolute values of items 1-27.

Passive subscale score^{*} - absolute values of all negative scores (1-27).

Aggressive subscale score^{*} - absolute values of all positive scores (1-27).

Students' Attitudes about Conflict Scale (SAAC; Jenkins & Smith, 1987).

Total score^{**} - items 1 - 32.

School Attachment/Commitment subscale score (items 3,7,11,14,17,20,24,27,31).

Conflict Resolution/Problem Solving subscale score (items 4,8,12,15,21,23).

Self Concept/Peer Relationships subscale score (items 1,5,9,13,16,18,22,25,28,32).

Perceptions of Social Skills subscale score (items 2,6,19,26,29).

Specific Knowledge Questionnaire (Daniels & Lybanon, unpublished).

Total score items^{*} 1 - 22.

Conflict Knowledge subscale score^{*} (items 1,2,3,14,17).

Strategies subscale score (items 5,13,19,20,21).

Social Problem Solving Steps subscale score^{*} (items 11,15,16).

Expression of /Recognition of Feelings subscale score (items 6,7,18,22).

Calming Down (items 4, 10)

School Social Behaviour Scales: Self-Management Subscale (Merrell, 1993).

Self - Management subscale score (items 1,3,4,5,6,10,12,13,14).

Interpersonal Relations subscale score (items 7,9,16,16).

Hostile/Irritable subscale score (items 2,8,11).

Note: * a square root transformation was performed on these dependent variables.

**a reflected square root transformation was performed on these dependent variables.

Skewness and Kurtosis values were used to assess normality (Stevens, 1992). Although Skewness in both directions was moderate, transformations on several of the variables were performed to ensure that Kurtosis (Platykurtosis) did not reduce the power in the Multivariate Analysis of Variance (Stevens, 1992). Square root transformations were performed on two variables displaying high to moderate kurtosis; 1) the CABS total score and its' Passive and Aggressive factor subscales, and 2) the Specific Knowledge Questionnaire and its' Conflict Knowledge and Social Problem Solving Steps factor scores. Reflected square root transformation were applied to two variables displaying high to moderate kurtosis; 1) the SAAC total score and 2) the Specific Knowledge Questionnaire's Calming Down subscale score, (see Table 4 for a list of transformed variables).

The above transformations also reduced the number of Univariate outliers found among the three different program groups. In fact, the transformations created new outliers, but as their standard scores (z scores) did not exceed a standard score of plus or minus three, no further transformations were implemented. No cases of multivariate outliers were detected with Mahalanobis' distances with $p < .001$.

Between Groups Design (Cross-Sectional)

This section presents the results of data obtained for a completely between subjects design, collected in Feb. 1996. These data, tried to determine the impact the Conflict Management curriculum was having on participating students. Specifically, these analysis tried to ascertain whether students who had been exposed to the program for two consecutive years had better developed social problem solving skills than students who

had received the program for only one year and those students who had not received the program curriculum. To this end, 148 students provided usable data. These students were distributed among three groups, differentiated by the level of treatment received: 42 students were exposed to the program curriculum for two-6 week sessions over the course of two consecutive years, 41 students were exposed to the program curriculum for one- 6 week session, and 65 students did not receive any type of social problem solving curriculum. All students responded to the same two questionnaires: The Children's Assertive Behaviour Questionnaire (CABS; Michelson & Wood, 1982) and the Student's Attitudes Towards Conflict Scale (SAAC; Jenkins & Smith, 1989).

The original design posited for the present study was considered to be Nested, with school nested under program treatment level received (Follow-up, New Program, Comparison). Thus, before any primary analysis were conducted on the students' responses, it was necessary to determine whether or not such a design analysis would have to be utilized. Kirk (1982) posits that when the different levels of one I.V. emerge only at specific levels of another I.V., a nested design is warranted. For example, in the present study, gender of participants was not a nested I.V., in that at all levels of treatment level, both boys and girls participated; the variance attributed to gender is shared at all levels of program treatment level. However, in the present study, school(s) would be considered a nested I.V., in that school #4 could not be in the second and first year curriculum implementation simultaneously. Although these types of variables (ie. schools, in this case) are often considered to be nuisance variables, it is important to tease out their contribution, if one wishes to make sound judgments concerning the effects of program

treatment levels.

One way to determine if this variable (ie. schools) truly does impact on the independent and dependent variables, is to treat it as an independent variable and conduct a nested Multivariate Analysis of Variance. Several¹ separate Nested (schools nested under program) 2 (Schools) by 2 (Program treatment level received; Follow-up and New Program) Multivariate Analysis of Variance were performed in an effort to determine whether schools attended should be considered as a separate independent variable. The Comparison group was not included in these analyses because all the students in this group were drawn from one school.

The results revealed non-significant school effects for almost all of the dependent variables. School effects were found for only two of the dependent variables: the total score and the Self-Concept/ Peer Relationships factor score obtained on the Students' Attitude about Conflict scale ($F(1, 2) = 6.04, p < .05$ and $F(2, 79) = 156, p < .05$, respectively). As none of the other dependent variables showed any significant school effects, all subsequent analysis did not utilize school as an independent variable. These findings proved fortunate; a Nested procedure would have been difficult to perform on a design incorporating two schools for the Follow-up group, two schools for the New Program group and only one school for the Comparison group.

The following section presents the results obtained through four Multivariate

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Six Separate Nested Manovas were required because each dependent variable had only one degree of freedom. Thus a separate nested Manova was performed on the each of the total scores and each of the subscores obtained for the CABS, SAAC, and Specific Knowledge Questionnaire.

Analyses of Variance. Four separate Manova's were necessary to ensure that singularity did not occur (ie. more cases than dependent variables; Tabachnick and Fidell, 1989)

Thus, one Manova was performed on the three total scores obtained from the three different questionnaires (CABS, SAAC, and Specific Knowledge Questionnaire).

Three other Manovas were conducted, one for the two CABS factors, (Passive and Aggressive), one for the four SAAC factors, (School Attachment/Commitment, Conflict Resolution/Problem Solving, Self Concept/Peer Relationships, and Perceptions of Social Skills), and one for the five Specific Knowledge Questionnaire factors (Conflict Knowledge, Strategies, Social Problem Solving Steps, Expression of /Recognition of Feelings, and Calming Down). For each of the Manova's, a sequential analysis was performed because of the unequal sample sizes obtained for the groups.

Based on Astri's (1996) preliminary results which indicated that the intervention had increased students' cognitive knowledge in year one of the program, a decision was made to restrict further analyses to two, 1-tailed comparisons. The first contrast compared the second and the first year groups to each other, whereas the second contrast compared the Comparison group to the combined results of the second and first year program groups (each hypothesis tested is described with the appropriate Manova, later in this section). Several a priori orthogonal planned comparisons are more powerful, statistically (Pedhazur, 1982), than all possible Post Hoc comparisons. The information gleaned from these two planned comparisons is specifically relevant to changes in those groups of most interest to the researcher.

Total Scores: CABS, SAAC, and Specific Knowledge Questionnaire

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Total Scores: CABS, SAAC, and Specific Knowledge Questionnaire

The CABS yields one total Assertiveness score and two factor scores: Passive and Aggressive (the factor scores were analyzed separately, to avoid singularity problems and are discussed later; Tabachnick & Fidell, 1989, p.87). Total Assertiveness is calculated through the addition of the absolute values of all items. Thus a low total score reflects a high level of Assertiveness. When the total score is high, one looks at each of the factor scores to determine if the high score was caused by a lot of passive or a lot of aggressive items (results from the CABS factor scores will be discussed later). Total scores for the CABS range between 0 and 54.

The SAAC yields one total score and four factor scores: Attachment/ Commitment to school environment, Conflict Resolution/ Problem Solving Skills, Self-Concept/ Peer Relations, and Perceptions of Social Skills/ Social Relations (these factor scores were also analyzed separately and will also be discussed later). The Total score is calculated through the addition of all the items and intends to be a measure of overall attitudes towards conflicts, skills and their use, self-esteem, and interpersonal relations. Total scores for the SAAC range between 32 and 128.

The Specific Knowledge Questionnaire yields one total score and five factor scores: Conflict Knowledge, Strategies, Social Problem Solving Steps, Expression of /Recognition of Feelings, and Calming Down (these factor scores were also analyzed separately and will also be discussed later). The Total score is calculated through the addition of all the items and intends to be a measure the amount of curriculum knowledge the children acquired from the implementation of the program curriculum.

A 3 (program treatment level: Follow-up - second year implementation. New

Program - first year implementation, and Comparison - No program) by 2 (gender: boy, girl) Sequential Manova was performed on the total scores obtained from the Children's Assertive Behaviour questionnaire (CABS), The Student Attitudes About Conflict questionnaire (SAAC), and The Specific Knowledge Questionnaire.

Using Wilk's criterion, it was found that the combined total scores for the CABS, SAAC, and Specific Knowledge questionnaires were not significantly affected by Program treatment level, $F(6, 280) = .54, p > .05, \eta^2 = .01, \text{power} = .22$. Furthermore, the combined total scores for the CABS, SAAC, and Specific Knowledge questionnaires were not significantly affected by the interaction of Program by Gender, $F(6, 280) = 1.80, p > .05, \eta^2 = .04, \text{power} = .67$. See Table 5 for descriptive statistics.

Despite the non-significant omnibus F obtained in the Multivariate Analysis of Variance (Pedhazur, 1982), 2 one-tailed planned comparisons were performed on the program treatment level received (ie. second year implementation, first year implementation, and no implementation). The first contrast tested the hypothesis that the second year program implementation students would be a) more assertive (CABS); b) have better attitudes towards conflict (SAAC); and c) have gained a greater amount of knowledge from the curriculum (Specific Knowledge questionnaires) than the first year program implementation students. Results revealed that the two program groups did not significantly differ from each other on the combined set of DV's, $F(3, 143) = 0.822, p > .05$. It appears that students in both groups responded in a similar fashion and that having the curriculum for two consecutive years did not produce any discernable differences between the two groups of students; second year implementation students were not more

Table 5

Means and Standard Deviations for Students receiving Conflict Resolution Program for the Second Year, First Year, and Comparison Group on The CABS, SAAC, and Specific Knowledge Questionnaires : Total Scores

	Comparison	Follow-up	New Program
	(N= 65)	(N= 42)	(N=41)
	Mean (St.Dev)	Mean (St.Dev)	Mean (St.Dev)
<u>CABS Total Score:</u>	3.98 (1.14)	3.87 (1.10)	4.07 (1.34)
<u>SAAC Total Score:</u>	5.09 (1.15)	5.21 (1.29)	5.08 (1.97)
<u>Specific Knowledge Total Score:</u>	3.37 (0.59)	3.45 (0.51)	3.33 (0.81)

Note: A reflected square root transformation was performed on the SAAC Total score, that is why the displayed mean does not correspond to the score range suggested below.

Children's Assertive Behavior Questionnaire -- Total Score range 0-54.

Student's Attitudes About Conflict -- Total Score range 32-128

Specific Knowledge Questionnaire -- Total Score range 0- 22

assertive, they did not display a more positive attitude towards conflict, nor did they gain a greater amount of curriculum knowledge when compared to the responses obtained from first year implementation students.

The second contrast tested the hypothesis that the two program groups would be a) more assertive (CABS); b) have better attitudes towards conflict (SAAC); and c) have gained a greater amount of knowledge from the curriculum (Specific Knowledge questionnaires) than the Comparison group students. Results from this analysis revealed that the Comparison students did not differ significantly from the results obtained by the combination of the two program groups, $F(3, 143) = 0.227, p > .05$. As in the previous comparison, students in all groups responded in a similar fashion. Thus, exposure to the Social Problem Solving curriculum did not produce any discernable differences between the three groups of students; those students who received the program curriculum were not more assertive, they did not display a more positive attitude towards conflict, nor did they gain a greater amount of curriculum knowledge when compared to the responses obtained from students who did not receive the program curriculum (see Table 5).

The 3 (program treatment level: Follow-up - second year implementation, New Program - first year implementation, and Comparison - No program) by 2 (gender: boy, girl) Sequential Manova further revealed that the combined total scores were significantly affected by Gender, $F(3, 140) = 8.69, p < .001, \eta^2 = .15, \text{Power} = .99$. Univariate tests revealed that each of the three total scores were significantly contributing to the multivariate effect: CABS total, $F(1, 142) = 17.04, p < .001, \eta^2 = .10, \text{Power} = .98$. SAAC total, $F(1, 142) = 13.68, p < .001, \eta^2 = .09, \text{Power} = .96$. and Specific Knowledge

Questionnaire total, $F(1, 142) = 22.69, p < .001, \eta^2 = .14, \text{Power} = .99$. For the CABS total score, results revealed that the boys were less assertive ($M = 4.36, SD = 1.16$) than the girls were ($M = 3.59, SD = 1.10$). For the SAAC total scores, results revealed that boys had poorer attitudes towards conflict situations and their problem solving skills when compared to girls. The SAAC total score had been reflected (meaning a reflected square root transformation had been performed) in order to control for severe negative skewness, so that girls with lower scores ($M = 4.77, SD = 1.22$) showed a more positive attitude than boys with higher scores ($M = 5.47, SD = 1.91$), who had poorer attitudes towards conflict. For the SKQ total scores, results revealed that the girls had acquired more problem solving knowledge ($M = 3.61, SD = .49$) when compared to boys their own age ($M = 3.14, SD = .69$). Girls then, regardless of which program treatment level they belonged to, perceived themselves as being more assertive in a variety of conflictual situations, as having a more positive attitude towards conflict situations, and were more knowledgeable of the skills necessary for successful and effective problem solving.

CABS Factor scores: Passive and Aggressive

The CABS also yields two factor scores: Passive and Aggressive. The Passive factor score is calculated through the addition of the absolute values of all negative items. Scores for the Passive factor range between 0-54. A high score on the Passive factor indicates that the students approach conflicts in a passive manner. The Aggressive Factor score is calculated through the addition of all positive items. Scores on the Aggressive factor range between 0-54. A high score on this factor indicates that the students approach conflicts in an aggressive manner. These two factors are used to describe the

students' approach towards resolving conflict when the Total Assertiveness score has produced a high value.

A 3 (program treatment level: second year implementation, first year implementation, and comparison) by 2 (gender: boy, girl) Sequential Manova was performed on the two factor scores obtained from the (CABS): Passive and Aggressive scores. The combined Passive and Aggressive scores were significantly affected by Program treatment level, $F(4, 282) = 2.94, p < .05, \eta^2 = .04$, Power = .79, but not by the interaction of Program by Gender, $F(4, 282) = 0.86, p > .05$. Univariate tests revealed that the Passive subscale of the CABS contributed significantly to the multivariate effect of program, $F(2, 142) = 4.78, p < .05, \eta^2 = .06$ (power = .79), whereas the Aggressive subscale did not, $F(2, 142) = 1.12, p > .05, \eta^2 = .02$ (power = .24). See Table 6 for descriptive statistics.

Two, one-tailed planned comparisons were performed to further investigate the main effect of program on the DV's. The first contrast tested the specific hypothesis that the students in the second year program implementation group would be less passive and less aggressive than the students in the first year implementation group. Results demonstrated that the two treatment groups did differ significantly on the combined set of DV's, $F(2, 144) = 5.35, p < .05, \eta^2 = .07$. Second year implementation students were less passive, ($M = 2.84, SD = 0.82$) in their responses to a variety of conflictual situations found on the CABS, than the first year implementation students, ($M = 3.39, SD = 1.08$), Univariate $F(1, 145) = 8.59, p < .05$. No significant differences were found between the two groups on the aggressive score, Univariate $F(1, 145) = 1.55, p > .05$. Thus, being

Table 6

Means and Standard Deviations for Students receiving Conflict Resolution Program for the Second Year, First Year, and Comparison Group for The CABS Factor Scores: Passive and Aggressive

	Comparison	Follow-up	New Program
	(N= 65)	(N= 42)	(N=41)
	Mean (St.Dev)	Mean (St.Dev)	Mean (St.Dev)
<u>Passive Score:</u> *			
	2.97 (0.74)	2.84 (0.82)	3.39 (1.07)
<u>Aggressive Score:</u>			
	2.62 (1.37)	2.67 (1.18)	2.31 (1.19)

* $p < .05$.

Children's Assertive Behavior Questionnaire -- Passive factor- range 0-54.
 Children's Assertive Behavior Questionnaire -- Aggressive factor- range 0-54.

exposed to the program for two consecutive years, appears to have decreased the students' tendency to respond in a passive manner to a variety of conflict-laden situations, when compared to first year implementation students. However, the implementation of the program for the second time did not have any effect on these student's tendency to respond aggressively, when compared to first year implementation students.

The second contrast tested the specific hypothesis that the students in both program groups would be less passive and less aggressive than the students in the Comparison group. Results from this analysis revealed no significant differences between the Comparison and combined treatment groups, $F(2, 144) = p > .05$, $\eta^2 = .02$ on this set of DV's. Thus, receiving the problem solving curriculum had no affect on the student's tendency to respond either in a passive or aggressive manner when compared to the Comparison students' responses on the same to factor scores (see Table 6).

The 3 (program treatment level: Follow-up - second year implementation, New Program - first year implementation, and Comparison - No program) by 2 (gender: boy, girl) Sequential Manova further revealed that the combined total scores were significantly affected by Gender $F(2, 141) = 10.03$, $p < .001$, $\eta^2 = .12$ (power = .98).

Univariate tests revealed that the Aggressive score contributed significantly to the multivariate effect $F(2, 142) = 18.19$, $p < .001$, $\eta^2 = .11$ Power = .99, whereas the Passive score made no such contribution $F(2, 142) = 2.42$, $p > .05$, $\eta^2 = .02$ Power = .34. For the Aggressive score, the boys had a tendency to be more aggressive, ($\underline{M} = 2.97$, $\underline{SD} = 1.32$) in a variety of conflict situations, when compared to the girls scores, ($\underline{M} = 2.14$, $\underline{SD} = 1.07$). For the Passive scores, boys ($\underline{M} = 3.17$, $\underline{SD} = 0.90$) and girls ($\underline{M} = 2.93$, $\underline{SD} = 0.87$)

responded in a similar fashion.

SAAC Factor Scores

The SAAC also generated four factor scores: Attachment / Commitment to school environment (item # 3,7,11,14, 17,20,24,27,31), Conflict Resolution / Problem Solving (item # 4,8,12,15,21,23), Self Concept / Peer Relations (item # 1,5,9,13,16,18,22,25,28, 32), and Perceptions of Social Skills / Social Relations (item # 2,6,19,26,29) . While the total score is obtained through the addition of all 32 items, the four factor scores are obtained through the addition of all items said, (by Jenkins & Smith, 1987), to make up that particular item. Scores on the Attachment / Commitment to school environment range between 9-36, scores on the Conflict Resolution / Problem Solving range between 7-28, scores on the Self-Concept/ Peer Relations factor range between 10-40, and scores on the Perceptions of Social Skills/ Social Relations range between 5-20.

A 3 (program treatment level: second year implementation, first year implementation, and comparison) by 2 (gender: boy, girl) sequential Manova was performed on the four subscale scores obtained from the SAAC: School Attachment / Commitment, Conflict Resolution / Problem Solving, Self-Concept / Peer Relations, and Perceptions of Social Skills / Interpersonal Relations.

Results revealed that the combined set of four subscale scores were significantly affected by Program treatment level, $F(8, 278) = 2.23, p < .05, \eta^2 = .06, \text{Power} = .87$, but not by the interaction of Program by Gender, $F(8, 278) = 0.76, p > .05$. Univariate tests revealed that none of the four subscale scores on the SAAC individually contributed significantly to the multivariate effect of Program treatment level received: School

Attachment/ Commitment, $F(2, 142) = 0.63, p > .05, \eta^2 = .01, \text{Power} = .16$, Conflict Resolution/Problem Solving, $F(2, 142) = 0.69, p > .05, \eta^2 = .01, \text{Power} = .17$, Self-Concept/Peer Relations, $F(2, 142) = 1.79, p > .05, \eta^2 = .02, \text{Power} = .37$, and Perceptions of Social Skills/Interpersonal Relations $F(2, 142) = 2.07, p > .05, \eta^2 = .03, \text{Power} = .42$). Thus, it is the combined effect of all four SAAC factor score that have contributed to the significant multivariate effect of program treatment levels (second year, first year and no program implementation). See Table 7 for descriptive statistics.

Two, one-tailed planned comparisons were performed to further investigate the main effect of program on the DV's. The first contrast tested the hypothesis that the second year program students would be a) more attached/committed to the school environment, b) would perceive themselves as having better conflict resolution and problem solving skills, c) would have developed a better sense of self and better interpersonal relationships, and d) would perceive themselves as having a better grasp of the underlying social skills necessary for smooth interpersonal relationships than students receiving the program for the first time. Results demonstrated that the two treatment groups did not differ significantly on the combined set of DV's, $F(4, 142) = 1.08, p > .05, \eta^2 = .03$ (see Table 7). It appears that students in both groups responded in a similar fashion and that having the curriculum for two consecutive years did not produce any discernable differences between the two groups of students; second year implementation students were not more attached/committed to the school environment, they did not perceive themselves as having better conflict resolution and problem solving skills. they

Table 7

Means and Standard Deviations for Students receiving Conflict Resolution Program for the Second Year, First Year, and Comparison Group on the Student Attitudes About Conflict Scale: Factor Scores.

Comparison (N= 65)	Follow-up (N= 42)	New Program (N=41)
Mean (St.Dev)	Mean (St.Dev)	Mean (St.Dev)
<u>School Attachment/Commitment:</u>		
27.51 (4.36)	26.93 (4.37)	26.54 (5.09)
<u>Conflict Resolution/Problem Solving:</u>		
20.86 (4.05)	19.95 (4.53)	20.62 (3.80)
<u>Self Concept/Peer Relations:</u>		
31.57 (3.60)	30.18 (3.84)	31.04 (3.70)
<u>Perceptions of Social Skills/Interpersonal Relations</u>		
13.04 (2.84)	13.99 (2.49)	13.94 (3.10) [*]
$p < .01$		

Attachment/Commitment --Score range= 9-36.

Conflict Resolution/Problem Solving Skills -- Score range=7-28.

Self-Concept/Peer Relations -- Score range=10-40.

Perceptions of Social Skills/Social Relations -- Score range=5-20.

did not develop a better sense of self and better interpersonal relationships, and they did not perceive themselves as having a better grasp of the underlying social skills necessary for smooth interpersonal relationships, when compared to those students receiving the program for the first time.

The second contrast tested the hypothesis that the two program schools a) would be more attached/committed to the school environment, b) would perceive themselves as having better conflict resolution and problem solving skills, c) would have developed a better sense of self and better interpersonal relationships, and d) would perceive themselves as having a better grasp of the underlying social skills necessary for smooth interpersonal relationships than Comparison students. This analysis revealed significant differences between the Comparison and combined treatment groups, on the combined set of DV's $F(4, 142) = 3.45, p < .01, \eta^2 = .09$. Univariate tests revealed that for this comparison, only the Perceptions of Social Skills /Interpersonal Relations subscale of the SAAC contributed to the significant multivariate effect. Thus, those students who did not receive the program curriculum were less sure of their social skills abilities and perceived themselves as having poorer interpersonal relationships ($M = 13.04, SD = 2.84$), when compared to the average score obtained from the combination of the two groups receiving the program curriculum ($M = 13.96, SD = 2.67$), $F(1, 145) = 3.94, p < .05$. Thus, the students who had been exposed to the program curriculum appeared to perceive themselves as having better social skills and stronger interpersonal relationships, when compared to those students who had not received the Conflict Management Curriculum.

The 3 (Program treatment level: Follow-up - second year implementation, New

Program - first year implementation, and Comparison - No program) by 2 (gender: boy, girl) Sequential Manova further revealed that the combined total scores were significantly affected by Gender $F(4, 139) = 5.29, p < .001, \eta^2 = .13, \text{Power} = .977$. Univariate tests revealed that three of the four subscale scores contributed to the significant multivariate effect; School Attachment/ Commitment, $F(1, 142) = 8.82, p < .01, \eta^2 = .06, \text{Power} = .84$, Conflict Resolution/Problem Solving, $F(1, 142) = 16.61, p < .001, \eta^2 = .10, \text{Power} = .98$, and Perceptions of Social Skills/Interpersonal Relations $F(1, 142) = 9.02, p < .05, \eta^2 = .06, \text{Power} = .85$. The Self-Concept/Peer Relations subscale did not make any significant contribution to the multivariate effect, $F(1, 142) = 2.02, p > .05, \eta^2 = .01, \text{Power} = .29$.

Girls tended to be more attached and committed to the school environment ($M = 28.12, SD = 4.82$) than boys ($M = 26.00, SD = 4.01$). Girls, ($M = 21.80, SD = 3.53$) were also more likely than boys, ($M = 19.24, SD = 4.27$) to perceive themselves as having better conflict resolution and problem solving skills. Furthermore, girls were also more likely to perceive themselves as having a better grasp of the underlying social skills necessary for smooth interpersonal relationships ($M = 14.27, SD = 4.07$) when compared to boys their own age ($M = 12.84, SD = 2.95$). Interestingly, differences between the genders were not found in their perceptions of Self Concept/ Peer Relations subscale scores, (M girls = 31.40, $SD = 3.84$; M boys = 30.65, $SD = 3.57$). Thus, perceptions of self and peers do not appear to differ when girls and boys scores are compared.

Specific Knowledge Questionnaire: Factor Scores

The Specific Knowledge questionnaire also yielded five factor scores: Conflict

Knowledge (items 1, 2, 3, 14, 17), Strategies (items 5, 13, 19, 20, 21), Social Problem Solving Steps (items 11, 15, 16), Expression of/Recognition of Feelings (items 6, 7, 18, 22), and Calming Down (items 4, 10). While the total score is obtained through the addition of all 22 items, the five factor scores are obtained through the addition of all the items that make up that particular subscale.

A 3 (Program treatment level: second year implementation, first year implementation, and comparison) by 2 (gender: boy, girl) sequential Manova was performed on the four subscale scores obtained from the Specific Knowledge Questionnaire: Conflict Knowledge subscale score, Strategies subscale score, Social Problem Solving, Steps subscale score, Expression of /Recognition of Feelings subscale score, Calming Down subscale score.

Results revealed that the combined set of five subscale scores were not significantly affected by Program treatment level, $F(10, 276) = .95, p > .05, \eta^2 = .03$. Power = .37, nor by the interaction of Program by Gender, $F(10, 276) = 1.47, p > .05, \eta^2 = .05$, Power = .74. See Table 8 for descriptive statistics.

Despite the non-significant omnibus F obtained in the Multivariate Analysis of Variance (Pedhazur, 1982), 2 one-tailed planned comparisons were performed on the program treatment level received (ie. second year implementation, first year implementation, and no implementation). The first contrast tested the hypothesis that the second year program implementation students would have acquired more Social Problem Solving knowledge from their longer exposure to the curriculum, than those students receiving the program for the first time. Specifically, students receiving the program for

Table 8

Means and Standard Deviations for Students receiving Conflict Resolution Program for the Second Year, First Year, and Comparison Group for the Specific Knowledge Questionnaire.

	Comparison	Follow-up	New Program
	(N= 65)	(N= 42)	(N=41)
	Mean (St.Dev)	Mean (St.Dev)	Mean (St.Dev)
<u>Conflict Knowledge:</u>			
	1.92 (0.33)	1.95 (0.30)	1.89 (0.37)
<u>Strategies:</u>			
	2.53 (1.11)	2.74 (0.98)	2.45 (1.12)
<u>Social Problem Solving Steps:</u>			
	1.61 (0.35)	1.67 (0.27)	1.63 (0.31)
<u>Expression of/ Recognition of Feelings:</u>			
	2.51 (1.64)	2.52 (1.66)	2.80 (2.15)
<u>Calming Down:</u>			
	0.56 (0.27)	0.54 (0.25)	0.59 (0.27)

Conflict Knowledge -- Score range = 0-5.

Strategies -- Score range = 0-5.

Social Problem Solving Steps -- Score range = 0-3.

Expression/Recognition of Feelings -- Score range = 0-4.

Calming Down -- Score range = 0-2.

two consecutive years would have gained more knowledge concerning, a) conflict situations, b) the various strategies appropriate to efficient conflict resolution, c) the successive steps necessary in Social Problem Solving, d) how to recognize and express feelings in themselves and others, and e) the necessity of Calming Down before approaching the other party. Results revealed that the two program groups did not significantly differ from each other on the combined set of DV's, $F(5, 141) = 1.14, p > .05$, $\eta^2 = .03$. It appears that students in both groups responded in a similar fashion and that having the curriculum for two consecutive years did not produce any discernable differences between the two groups of students. Second year implementation students did not appear to have gained more knowledge about conflict situations, the various strategies appropriate to efficient conflict resolution, the successive steps necessary in Social Problem Solving, how to recognize and express feelings in themselves and others, and the necessity of Calming Down before approaching the other party, when compared to responses obtained from first year implementation students.

The second contrast tested the hypothesis that the two program groups would have acquired more Social Problem Solving knowledge from their exposure to the curriculum, than the Comparison group students. Specifically, students receiving the program for two consecutive years would have gained more knowledge concerning, a) conflict situations, b) the various strategies appropriate to efficient conflict resolution, c) the successive steps necessary in Social Problem Solving, d) how to recognize and express feelings in themselves and others, and e) the necessity of Calming Down before approaching the other party. The results from this analysis also demonstrated that the

Comparison students did not differ significantly from the results obtained by the combination of the two program groups, $F(5, 141) = 0.227, p > .05, \eta^2 = .01$. Thus, students in all three groups responded in a similar fashion and that having the curriculum for two consecutive years did not produce any discernable differences between the two groups of students. Students receiving the program curriculum did not appear to have gained more knowledge about conflict situations, the various strategies appropriate to efficient conflict resolution, the successive steps necessary in Social Problem Solving, how to recognize and express feelings in themselves and others, and the necessity of Calming Down before approaching the other party, when compared to students who had not received the program curriculum (see Table 8).

The 3 (Program treatment level: Follow-up - second year implementation, New Program - first year implementation, and Comparison - No program) by 2 (gender: boy, girl) Sequential Manova further revealed that the combined total scores were significantly affected by the main effect of Gender, $F(5, 138) = 4.51, p < .001, \eta^2 = .14, \text{Power} = .97$. Univariate tests revealed that four of the five subscale scores on the Specific Knowledge Questionnaire contributed significantly to the multivariate effect of gender: Strategies subscale score, $F(1, 142) = 9.23, p < .05, \eta^2 = .06, \text{Power} = .85$. Social Problem Solving Steps subscale score, $F(1, 142) = 18.71, p < .001, \eta^2 = .12, \text{Power} = .99$. Expression of / Recognition of Feelings subscale score, $F(1, 142) = 6.37, p < .05, \eta^2 = .04, \text{Power} = .70$. Calming Down subscale score, $F(1, 142) = 12.55, p < .05, \eta^2 = .08, \text{Power} = .94$. The last subscale score, Conflict Knowledge did not significantly contribute to the multivariate effect of gender, $F(1, 142) = 3.21, p > .05, \eta^2 = .02, \text{Power} = .43$.

Girls ($\underline{M} = 1.70$, $\underline{SD} = 0.296$), when compared to boys ($\underline{M} = 1.56$, $\underline{SD} = 0.328$), were more likely to follow the set out Social Problem Solving Steps taught by the curriculum. Girls, ($\underline{M} = 2.83$, $\underline{SD} = 0.992$) were also more likely than boys, ($\underline{M} = 2.29$, $\underline{SD} = 1.09$), to have learned that there are a variety of strategies that could be used in conflict resolution. Furthermore, girls were more likely to recognize feelings in others and also more likely to express their own feelings during conflicts ($\underline{M} = 3.19$, $\underline{SD} = 1.67$) when compared to boys their own age ($\underline{M} = 1.98$, $\underline{SD} = 1.70$). Boys, ($\underline{M} = 0.64$, $\underline{SD} = 0.292$) on the other hand, were more likely than girls ($\underline{M} = 0.49$, $\underline{SD} = 0.216$), to suggest that Calming Down when angry, was an effective way of preventing a needless argument. Interestingly, differences between the genders were not found in the amount of conflict knowledge acquired from the curriculum, ($\underline{M}$ girls = 1.97, $\underline{SD} = 0.327$; $\underline{M}$ boys = 1.87, $\underline{SD} = 0.334$). Thus, girls and boys, regardless of which program group they belonged to, both learned the same amount of conflict situation knowledge.

Summary of Between Subjects Results

In an effort to control for Singularity problems (Tabachnick & Fidell, 1989) the preceding results were obtained from several Multivariate Analyses of Variance performed on three different questionnaire total scores and their corresponding factor scores.

Obtained responses on the CABS total score revealed no discernable differences between the three program treatment levels (second year, first year, and no intervention) were found. Thus, for the CABS total score, receiving the program curriculum did not appear to produce sufficient changes in the students' cognitive Social Problem Solving abilities. When the results for the two factor scores (Passive and Aggressive) were

perused we find that these results were substantiated. No differences in students' Passive or Aggressive response tendencies were found when the three groups were compared. Interestingly, planned comparisons on the two factor scores revealed, that the first year students, when compared to the second year students, were more likely to respond in a passive manner and less likely to respond in an aggressive manner when confronted with a variety of conflictual situations.

Nevertheless, significant differences between the genders were obtained on the CABS total and Aggressive factor scores. Girls, regardless of which program treatment level they belonged to perceived themselves as being more assertive when compared to the boys' self-perceptions. Subsequent analysis performed on the two factor scores revealed that boys, when compared to girls, were more likely to respond aggressively when confronted with conflict.

Obtained responses on the SAAC total score revealed no discernable differences between the three program treatment levels (second year, first year, and no intervention) were found. Thus, for the SAAC total score, receiving the program curriculum did not appear to produce sufficient changes in the students' overall attitudes towards conflicts, skills and their use, self-esteem, and interpersonal relations. Results for the four factor scores (Attachment / Commitment to the school environment, Conflict Resolution / Problem Solving skills, Self-Concept / Peer Relations, and Perceptions of Social skills / Social relations) substantiated these results. No differences in students' perceptions of their skills abilities, self-esteem, and interpersonal relationships were found when the three groups were compared. Interestingly, planned comparisons on the four factor scores

revealed, that the Comparison students, when compared to the program curriculum recipients, were less sure of their social skills abilities and perceived themselves as having poorer interpersonal relationships.

Nevertheless, significant differences between the genders were obtained on the SAAC total and its' four factor scores. Girls, regardless of which program treatment level they belonged to, perceived themselves as having a better overall attitude towards conflict, skills and their use, self-esteem, and interpersonal relations, when compared to the boys' self-perceptions. Furthermore, girls were found to be a) more attached and committed to the school environment, b) girls perceived themselves as having better conflict resolution / problem solving skills and c) they had a better grasp of the underlying social skills necessary for smooth social interactions, when compared to boys' responses.

Obtained responses on the Specific Knowledge questionnaire revealed no discernable differences between the three program treatment levels (second year, first year, and no intervention) were found. Thus, for the Specific Knowledge total score and its' five factor scores (Conflict Knowledge, Strategies, Social Problem Solving steps, Expression of / Recognition of Feelings, and Calming Down), receiving the program curriculum did not appear to produce sufficient changes in the students' overall attitudes towards conflicts, skills and their use, self-esteem, and interpersonal relations.

Nevertheless, significant differences between the genders were obtained on the Specific Knowledge Questionnaire's total score and its' five factor scores. Girls, regardless of which program treatment level they belonged to, were found to have acquired more curriculum specific problem solving knowledge when compared to the boys

their own age. Moreover, girls a) were more likely to follow the set out Social Problem Solving Steps taught by the curriculum, b) were more likely to have learned that there are a variety of strategies that could be used in conflict resolution, and c) more likely to recognize feelings in others and also more likely to express their own feelings during conflicts. Interestingly, girls were less likely to suggest that Calming Down when angry, was an effective way of preventing a needless argument.

Within Subjects Analysis: Mixed Design (longitudinal design)

The next section presents the results obtained from data gathered at three separate points in time (pre-test - Oct. 1994, immediately before any curriculum implementation; post-test 1 - March 1995, obtained six months after curriculum implementation; and post-test 2 - Feb. 1996, obtained approximately one year after first implementation of the curriculum and six months after the curriculum had been implemented for the second time). These analyses, tried to determine the impact a second curriculum implementation, would have on the students' self-reported Assertive behaviours and attitudes towards conflict. The same self-report questionnaires were used to collect data at each of these three points in time: The Childrens' Assertive Behavior Questionnaire (CABS; Michelson & Wood, 1982) and the Student's Attitudes towards Conflict Scale (SAAC; Jenkins & Smith, 1989). Out of an original sample of 184 students (Astri, 1996) and 148 students (present study), only 40 students had received the program for two consecutive years, and produced data at all three points in time. Furthermore, the present sample was equally distributed amongst the two schools participating in the Conflict Management program for two consecutive years. Those students who had received only one year of training ($n = 41$;

present study) and those students in the Comparison group ($n= 65$; present study) were not used in these analysis.

Total Scores: CABS and SAAC (please refer to pages 91 for a description)

A 3 (Time: pre, post 1, post 2) X 2 (School: students in both schools received the program for two consecutive years) X 2 (gender: boy, girl) mixed between -repeated measures sequential Manova was performed on the total scores obtained from the CABS and SAAC questionnaires. School and Gender effects were the independent variables for the analysis, whereas Time was the within subjects variable. Within subjects analysis are reported first, followed by the results obtained for the Between subjects analysis.

Using Pillai's trace criterion², repeated measures results revealed that the combined total scores were significantly affected by the School by Time interaction, $F(4, 144) = 2.84$, $p = .027$, $\eta^2 = .07$, Power = .76. Univariate tests revealed that both the CABS total score $F(2, 72) = 3.99$, $p = .023$, $\eta^2 = .10$, Power = .70, and the SAAC total score $F(2, 72) = 3.26$, $p = .044$, $\eta^2 = .08$, Power = .60, contributed to the significant multivariate effect. Figures 2 and 3 shows a graphical representation. None of the remaining 3-way and 2-way interactions were significant ($p > .05$). Appendix P presents the details of the multivariate analysis, in Table 9.

2

Tabachnick and Fidell (1989) suggest using Pillai's trace criterion instead of Wilk's Lambda, when the Homogeneity of Variance/ Covariance matrices assumptions have been violated (see also Olson, 1976). Pillai's trace criterion is proposed to be a more robust test when this assumption, tested by Box's M, is not retained. This criterion is most often used, when an examination of the covariance matrix for each of the separate cells, reveals that cells with small n produce large variances/covariances and cells with large n produce small variances and covariances. Such results suggest that the original alpha used to test the effects is too liberal and that a correction towards conservatism must be made.

CABS total score: School X Time Interaction effect

As seen in Figure 2, mean scores on the CABS revealed that students attending school 1, were more assertive at pre-test when compared to their scores obtained six months after the first intervention and six months after the second intervention. These students' level of assertiveness declined with the passage of time; responses on the CABS questionnaire becoming less assertive, six months after the first intervention and even less assertive six months after the second intervention. When tested this linear trend was not significant, $F(1,36) = 3.94$, $p = .055$, $\eta^2 = .10$, Power = .49. Mean scores obtained on the CABS for students attending school 2, revealed that they too were more assertive at pre-test, when compared to their scores, obtained six months after the first intervention and six months after the second intervention. However, while these students became less assertive after receiving the intervention for the first time, their scores obtained six months after the second intervention, revealed that they had become more assertive than they were six months after the first intervention. When examined, this quadratic trend was not significant, $F(1,36) = 4.07$, $p = .051$, $\eta^2 = .10$, Power = .50. Furthermore, responses obtained from students attending school 1 were found to be more assertive, at pre-test and six months after the first intervention, when compared to the responses obtained from students in school 2. Interestingly, when scores on the CABS are compared six months after the second intervention, it is the students attending school 2 that appear to be more assertive than students attending school 1 (see Figure 2).

Figure 2 The Childrens' Assertive Behavior Questionnaire: Total Score

Figure 3 The Students' Attitudes about Conflict Scale: Total Score

Simple effects analyses³ were conducted in an effort to determine, if the group means (ie. students in school 1 and students in school 2) at each of the three points in time (ie. the repeated measure: pre-test, post 1 and post 2) were significantly different from each other. Given that there are three points in time, three post hoc simple effects were conducted⁴. Results from this 3 (time: pre-test, post 1, post 2) X 2 (school) Manova revealed that the groups did not significantly differ from each other at any of the three points in time (Table 10 reports the details of the analysis). Six Post Hoc pairwise comparisons were then performed in an effort to determine whether the means obtained at each of the three points in time differed from each other within each school tested. This resulted in three pairwise comparisons per school. As suggested by Stevens (1992) Tukey's Student *q* was utilized for these test. Each comparison was tested at an experimenter- set alpha of .01 (maximum alpha = .12). Such conservatism ensured that the overall alpha rate did not exceed a maximum of .15, suggested as a tolerable estimate

3

Simple effects analysis are performed in SPSS under the Manova command. Under this analysis subjects are nested within the grouping of school (ie. subjects are nested within the school that they are attending) at each separate point of the repeated measures analysis. Thus three separate groupings are formed within one analysis; a) subjects are nested within school at pre-test, b) subjects are nested within school at post 1, c) and subjects are nested within school at post 2. The Manova then creates a separate error term for each of the above mentioned contrasts. Thus, for subjects nested within school at pre-test, differences among the means for the two groups are tested by its' own error term. Analogous error terms are developed for post 1 and post 2. Please refer to Tabachnick and Fidell (1989), p. 459, for more information.

4

Tabachnick and Fidell (1989) contend that Manova, when used to detect simple effects, has taken into consideration that these tests are performed post hoc, after the omnibus *F* for the interaction determined significance. Thus, the Manova automatically corrects for type 1 error with a "Scheffé adjustment applied to the unadjusted critical *F*" (p. 460). The Scheffé adjustment for these three post hoc comparisons is: $F_s = (k - 1) F_{(k-1), k(n-1)}$

for the experiment -wise error rate (p. 198). Results from these post hoc pair-wise tests indicated that, none of the comparisons were significant. Thus, for both schools, the comparisons for time 1 and time 2, time 1 and time 3, and time 2 and 3 were not significantly different from each other; indicating that the students' level of assertiveness did not change substantially over the course of the two intervention implementation (see Table 10).

SAAC total score: School X Time Interaction effect

As seen in Figure 3, mean scores on the SAAC revealed that students attending school 1, reported a more positive attitude towards conflict at pre-test when compared to their scores obtained six months after the first intervention and six months after the second intervention. These students' attitudes towards conflict became less positive with the passage of time; responses on the SAAC questionnaire becoming more negative, six months after the first intervention and even more negative six months after the second intervention. When tested this linear trend was marginally significant, $F(1,36) = 4.33$ $p = .045$, $\eta^2 = .11$, Power = .52. Mean scores obtained on the SAAC for students attending school 2, revealed that they also reported a more positive attitude towards conflict at pre-test, when compared to their scores, obtained six months after the first intervention and six months after the second intervention. However, unlike students in school 1, students in school 2 regained their positive attitude after receiving the intervention for the second time.

Furthermore, while these students (School 2) no longer held such a positive attitude towards conflict, after the first intervention, their scores, after the second

Table 10

Multivariate F Tests for the Simple Effects for the Time by School interaction obtained for the total scores on the CABS and SAAC.

Measure	IV	Multivariate F	df	p
<u>CABS</u>				
School by Pre-test		0.14	1/38	.711
School by Post 1		0.57	1/38	.455
School by Post 2		2.45	1/38	.126
<u>SAAC</u>				
School by Pre-test		1.43	1/38	.239
School by Post 1		2.06	1/38	.159
School by Post 2		9.25	1/38	.004

Note: SPSS Manova presumes that the simple effects analysis are Post Hoc. Therefore familywise type 1 error is controlled for through the statistical package. Critical F is adjusted using a Scheffé adjustment - $F_s = (k-1) F_{(k-1), k(n-1)}$.

intervention, revealed an even more positive attitude than the one reported pre-intervention. When examined, this quadratic trend was not significant, $F(1,36) = 0.98$, $p = .329$, $\eta^2 = .03$, Power = .17. Moreover, means reveal that the students attending school 2 had a more positive attitude towards conflict at all three points in time, when compared to the means obtained from the students attending school 1 (please see Figure 3).

Simple effects analyses were conducted in an effort to determine, if the group means (ie. students in school 1 and students in school 2) at each of the three points in time (ie. the repeated measure: pre-test, post 1 and post 2) were significantly different from each other. Given that there are three points in time, three post hoc simple effects were conducted. Results from this 3 (time: pre-test, post 1, post 2) X 2 (school) Manova revealed that the groups did not significantly differ from each other, when means between the two groups were compared at pre-test and six months after the first intervention. Significant differences between the two groups, however, occurred when scores on the SAAC were compared six months after the second intervention had been implemented. Table 10 reports the details of the analysis. Thus, students attending school 2, reported a more positive attitude towards conflict, after receiving the intervention for two consecutive years, when compared to students attending school 1, who also received the intervention for two consecutive years.

Results from the repeated measures analysis also revealed that the combined scores were significantly affected by the within subjects variable Time, $F(4,142) = 3.32$, $p = .012$, $\eta^2 = .09$, Power = .83. Univariate results indicate that the SAAC total score contributed to the significant multivariate effect, $F(2,72) = 4.94$, $p = .010$, $\eta^2 = .12$. Power

= .79; the CABS total score did not, $F(2,72) = 2.28$, $p = .109$, $\eta^2 = .06$, Power = .45.

Thus, immediately before intervention, students (regardless of which school they attend) had a more positive attitude towards conflict, ($M = 96.5$, $SD = 9.80$) than they did after the first ($M = 91.32$, $SD = 12.27$) and second intervention ($M = 93.19$, $SD = 12.27$).

Interestingly, these same students appeared to have developed a more positive attitude the longer they were exposed to the program.

Using Pillai's trace criterion, between subjects results revealed that the combined total scores were significantly affected by School, when scores obtained on these two questionnaires were averaged across the three time periods $F(2,35) = 4.19$, $p = .023$, $\eta^2 = .19$, Power = .70. Univariate tests revealed that the SAAC total score contributed to the significant multivariate effect, $F(1,36) = 5.31$, $p = .027$, $\eta^2 = .13$, Power = .61. Students in school 2 reported a more positive attitude towards conflict ($M = 97.23$, $SD = 12.35$), when compared to students in school 1 ($M = 90.11$, $SD = 10.53$). The CABS Univariate test revealed that its' contribution to multivariate effect was not significant, $F(1, 36) = 0.03$, $p = .863$, $\eta^2 = .001$, Power = .04. Thus, when faced with a variety of conflicts on the CABS, self-reported assertive behaviour was not significantly different between the students attending the two program schools (school 1- $M = 3.73$ $SD = 1.12$; school 2 - $M = 3.68$, $SD = 1.04$). Tests of gender revealed no significant main effect ($p > .05$), nor was the interaction between school and gender significant ($p > .05$). Appendix P presents the details of the multivariate analysis in Table 9.

CABS Factor scores: Passive and Aggressive (please refer to page 95 for a description).

A 3 (time: pre, post 1, post 2) X 2 (school: students in both schools received the program for two consecutive years) X 2 (gender: boy, girl) mixed between -repeated measures sequential Manova was performed on the Passive and Aggressive factor scores obtained from the CABS questionnaires. School and gender effects were the independent variables for the analysis, whereas Time was the within subjects variable. Within subjects analysis are reported first, followed by the results obtained for the Between subjects analysis.

Using Wilk's Lambda, repeated measures results revealed that the combined total scores were significantly affected by the School by Time interaction, $F(4, 142) = 3.39$, $p = .011$, $\eta^2 = .09$, Power = .84. Univariate tests revealed that the Aggressive CABS factor score contributed to the significant multivariate effect, $F(2, 72) = 4.89$, $p = .010$, $\eta^2 = .12$, Power = .79; the Passive CABS factor score did not, $F(2, 72) = 2.04$, $p = .138$, $\eta^2 = .05$, Power = .41. Figure 4 shows a graphical representation of the Aggressive factor. None of the remaining 3-way and 2-way interactions were significant ($p > .05$). Appendix P presents the details of the multivariate analysis in Table 11.

Time by School Interaction: CABS Aggression factor score.

As seen in Figure 4, mean scores on the CABS Aggressive factor revealed that students attending school 1, were less aggressive, in their attempts to resolve conflicts, at pre-test when compared to their scores obtained six months after the first intervention and six months after the second intervention. These students' level of aggression increased with the passage of time; responses on the CABS questionnaire becoming more aggressive, six months after the first intervention and even more aggressive six months

Figure 4 The Childrens' Assertive Behavior Questionnaire: Aggression Factor Score

after the second intervention. When tested this linear trend was significant, $F(1,36) = 8.43$, $p = .006$, $\eta^2 = .19$, Power = .80; the gradual increase in aggression over the two six month periods was significant. Mean scores obtained on the CABS Aggressive factor for students attending school 2, revealed that they too were less aggressive at pre-test, when compared to their scores, obtained six months after the second intervention. However, these students aggressive approach to conflict resolution remained approximately the same during the time span ranging from pre-test to six months after the first intervention. The increased aggression became evident, for these students, six months after the second intervention, when their means indicated that they were more aggressive after the second intervention than at either previous points in time. As mentioned above an examination of the linear trend revealed that this gradual increase in aggression over the two six month periods was significant. Furthermore, at pre-test, students attending school 1 were found to be less aggressive than students attending school 2. Six months after the intervention, however, students in school 1 had become just as aggressive as students in school 2. Interestingly, although both groups became more aggressive after the second intervention, mean scores show that the students in school 1 were even more aggressive than the students attending school 2.

Simple effects analyses were conducted in an effort to determine, if the group means on the aggressive factor (ie. students in school 1 and students in school 2) at each of the three points in time (ie. the repeated measure: pre-test, post 1 and post 2) were significantly different from each other. Given that there are three points in time, three post hoc simple effects were conducted. Results from this 3 (time: pre-test, post 1, post 2) X 2

(school) Manova revealed that the groups did not significantly differ from each other, at any of the three points in time, although the differences between the groups approached significance when means were compared six months after the second intervention. Table 12 reports the details of the analysis.

Results from the repeated measures analysis also revealed that the combined scores were significantly affected by the within subjects variable Time $F(4, 142) = 6.63$, $p = .000$, $\eta^2 = .16$, Power = .99. Univariate results indicate that the aggressive factor contributed to the significant multivariate effect, $F(2, 72) = 13.88$, $p = .000$, $\eta^2 = .28$, Power = .99; the Passive factor did not, $F(2, 72) = 0.92$, $p = .405$, $\eta^2 = .02$, Power = .20. Thus, students (regardless of which school they attend) approached conflict resolution in a more aggressive manner the longer they are exposed to the intervention. For instance, before the intervention, students' scores indicated that they approached conflicts less aggressively ($M = 1.70$, $SD = 1.10$) than a) six months after the first intervention ($M = 1.91$, $SD = 1.31$) and b) six months after the second intervention ($M = 2.68$, $SD = 2.68$).

Using Wilk's Lambda, between subjects results revealed that the combined total scores were not significantly affected by school, gender, or the interaction between school and gender ($p > .05$; See Table 11 in Appendix P).

SAAC Factor Scores (please refer to page 99 for a description)

To avoid singularity problems due to the small number of cases obtained per cell per dependent variables, school, gender, and grade effects were analyzed through three separate Manova analysis. Below, the results for the effect of school are presented first, followed by the effect for gender. Grade effects were non-significant, as such they are only

Table 12

Multivariate F Tests for the Simple Effects for the Time by School interaction obtained for the CABS Aggressive factor score

IV	Multivariate F	df	p
School by Pre-test	2.32	1/38	.136
School by Post 1	0.00	1/38	.946
School by Post 2	4.88	1/38	.064

Note: SPSS Manova presumes that the simple effects analysis are Post Hoc. Therefore familywise type 1 error is controlled for through the statistical package. Critical F is adjusted using a Scheffé adjustment - $F_s = (k-1) F_{(k-1), k(n-1)}$.

reported in Appendix P, Table 14.

A 3 (time: pre, post 1, post 2) X 2 (School: students in both schools received the program for two consecutive years) mixed between -repeated measures sequential Manova was performed on four factor scores obtained from the SAAC questionnaire. School was the Between variable for the analysis, whereas Time was the Within subjects variable. Within subjects analysis are reported first, followed by the results obtained for the Between subjects analysis.

Using Wilk's Lambda, repeated measures results revealed that the combined scores were significantly affected by within subjects variable, Time, $F(8, 146) = 156.44$, $p = .000$, $\eta^2 = .90$, Power = 1.00. Univariate tests revealed that all four factor scores contributed to the significant multivariate effect of Time; School Attachment / Commitment, $F(2, 76) = 126.90$, $p = .000$, $\eta^2 = .79$, Power = 1.00, Conflict Resolution / Problem Solving Skills, $F(2, 76) = 170.06$, $p = .000$, $\eta^2 = .82$, Power = 1.00, Self-Concept / Peer Relations, $F(2, 76) = 272.34$, $p = .000$, $\eta^2 = .88$, Power = 1.00, and Perceptions of Social Skills / Interpersonal Relations, $F(2, 76) = 456.49$, $p = .000$, $\eta^2 = .92$, Power = 1.00, (see Table 13 for the means and standard deviations). From the means seen in Table 13, it appears that all students were a) more committed to their school environment; b) perceived themselves as having better conflict resolution skills; c) perceived themselves as having a better grasp of the underlying social skills necessary for smooth social interactions; and d) perceived themselves as having better interpersonal relationships at pre-test when compared to their scores, six months after the first intervention and six months after the second intervention. Tests of School revealed no

Table 13

Means and Standard Deviations for Students receiving Conflict Resolution Program for Two consecutive years for the four factor scores obtained on the SAAC: Main effect of Time

	Pre-test		Post 1		Post 2	
	M	SD	M	SD	M	SD
Attachment/ Commitment:						
	28.52	3.93	26.10	4.90	26.87	4.48
Conflict Resolution/ Problem Solving Skills						
	21.75	3.22	20.58	3.78	19.83	4.60
Self Concept/ Peer Relations						
	30.92	4.12	28.85	4.53	30.04	3.86
Perceptions of Social Skills/ Social Relations						
	13.43	2.42	13.07	1.98	13.89	2.51

Notes: N=40

Attachment/ Commitment - Score range = 9-36

Conflict Resolution/ Problem Solving Skills - Score range = 7-28

Self Concept/ Peer Relations - Score range = 10-40

Perceptions of Social Skills/Social Relations Score range = 5-20.

significant main effect ($p > .05$) Appendix P presents the details of the multivariate analysis in Table 14.

Gender effects on the four SAAC factor scores were examined next, with a 3 (Time: pre, post 1, post 2) X 2 (Gender: Male, Female) mixed between -repeated measures sequential Manova. As in the previous analysis, the combined factor scores were significantly affected by the within subjects variable Time, $F(8,146) = 152.64$, $p = .000$, $\eta^2 = .90$, Power = 1.00. The reader is asked to refer to the previous presentation of the Time effect for a description of the effect. The interaction between Time and Gender was not significant. The main effect of Gender approached significance. Please refer to Table 14 in Appendix P for the details of the analysis, and Table 15 for the means and standard deviations obtained for the Gender effect.

Summary of results obtained for the Within Subjects Results: Repeated Measures.

The above results were obtained from several Multivariate Analyses of Variance performed on two different Questionnaires and their factor scores, obtained from those students receiving the program curriculum for two consecutive years ($N = 40$).

Obtained responses on the CABS total score revealed that the students' scores were significantly affected by the school they were attending and the time at which their responses were generated. Group means obtained at three different points in time suggested that the students attending school 1 were more assertive at pre-test and six months after the first intervention than the students attending school 2. However, six months after the intervention, the students attending school 2 were the more assertive students. Furthermore, students attending school 1 were found to be more assertive at

Table 15

Means and Standard Deviations for Students receiving Conflict Resolution Program for Two consecutive years for the four factor scores obtained on the SAAC: Gender

	Boys		Girls	
	M	SD	M	SD
Attachment/ Commitment:				
	25.91	4.05	28.20	4.51
Conflict Resolution/ Problem Solving Skills				
	19.13	3.38	22.02	3.75
Self Concept/ Peer Relations				
	28.98	3.27	30.72	4.68
Perceptions of Social Skills/ Social Relations				
	13.09	1.82	13.77	2.60

Notes: boys n=18

girls n=22

Attachment/ Commitment - Score range = 9-36

Conflict Resolution/ Problem Solving Skills - Score range = 7-28

Self Concept/ Peer Relations - Score range = 10-40

Perceptions of Social Skills/Social Relations Score range = 5-20.

pre-test, than six months after the first and six months after the second interventions.

These students' assertive response tendencies had declined with the passage of time.

Students attending school 2, were also more assertive at pre-test and six months after the first intervention. However, scores obtained after the second intervention, revealed that they had become more assertive.

Results from the CABS, Passive and Aggressive factors revealed that students' scores were significantly affected by the school they were attending and the time at which their responses were generated.. Univariate tests revealed that only the Aggressive factor score contributed to this effect. At pre-test, students attending school 1 were found to be less aggressive than students attending school 2. Six months after the intervention, however, students attending school 1 had become just as aggressive as students attending school 2. Interestingly, although both groups became more aggressive after they had received the second intervention, it is the students attending school 1 that have become the more aggressive people. Furthermore, all students became less assertive (more aggressive) with the passage of time.

Obtained responses on the SAAC total score revealed scores were significantly affected by the school they were attending and the time at which their responses were generated. Students attending school 2 had a more positive attitude towards conflict at all three points in time, when compared to the means obtained from the students attending school 1. Simple effects analysis confirmed this finding.

Furthermore, at pre-test these students (school 1) reported having a more positive attitude towards conflict, when compared to their mean scores six months after the first

and six months after the second interventions. Students in school 2 also reported a more positive attitude towards conflict at pre-test, than at either of the other two points in time. However, these same students also reported that their attitudes towards conflict became more positive after the second intervention.

The Manova analysis performed on the four SAAC factor scores revealed that only the main effect of time was significant; all four factors contributed to this effect. Group means point out that all students were a) more committed to their school environment; b) perceived themselves as having better conflict resolution skills; c) perceived themselves as having a better grasp of the underlying social skills necessary for smooth social interactions; and d) perceived themselves as having better interpersonal relationships at pre-test when compared to their scores, six months after the first intervention and six months after the second intervention.

Part B Student Behavioral Simulations (Between groups analysis)

This section presents the results obtained through two structured potentially conflict-laden behavioral simulations. Behavioral coding was achieved with an event sampling technique where only the presence or absence of the behaviour was coded. Appendix R presents descriptive statistics for all the behavioral categories coded in Table 16. Preliminary data screening, described in the method section, produced seven behavioral categories suitable for further analysis: Problem Identification, Expression of Feelings, Suggested Verbal Compromise, Helping/Sharing strategy, and Brainstorming for the first simulation and Suggested Verbal Compromise and Expression of Feelings for the second simulation. Appendix R also presents all Tables of Observed and Expected

frequencies for the behavioral categories analyzed. All seven behavioral variables were analyzed using a special case of Loglinear analysis: Logit Analysis⁵. It must be noted that for all the analysis in this section, two, 2-tailed planned comparisons were performed. As this data was considered to be exploratory in nature, the present researcher felt that two a priori, two-tailed planned comparisons would provide more opportunities to discover differences between the groups. The first contrast compared the second and the first year groups to each other, whereas the second contrast compared the Comparison group to the combined results of the second and first year program groups. The underlying hypotheses for these planned comparisons are described in their appropriate sections.

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All seven behavioral variables were analyzed using a special case of Loglinear analysis: Logit analysis. Whereas Loglinear analysis is usually used to investigate associations between all variables in a three factor- or higher- multiway contingency table, a Logit analysis only measures the associations between a specific dependent variable and all independent variables in a three factor- or higher- multiway contingency table. Stevens (1992) contends that this technique (eg. Loglinear and Logit analysis) is a more sound statistical procedure than running several Chi-square analysis in that it enables the researcher a) to detect any three factor- or higher-order interactions and b) examine pairwise relationships simultaneously (pp. 497). In Logit analysis, as opposed to Loglinear analysis, one variable is specifically treated as a dependent variable, all other variables are considered to be independent variables. Thus only the relationships between the dependent and independent variables are measured; potential relationships between the independent variables are not measured. Through a Logit analysis, main effects are determined through the association of the dependent variable and the independent variable (ie. presence of problem identification behaviour and gender), whereas interactions are determined "through the association of the dependent variable and the joint effects of two or more independent variables" (ie. presence of problem identification behaviour and gender and intervention; Tabachnick & Fidell, 1989, pp. 271). Furthermore, a separate analysis on the dependent variable is performed "against the hypothesis that the frequencies are equal in each cell" (Tabachnick & Fidell, 1989, pp. 271). Parameter estimates and/ or odds ratios are used to determine cell frequency and the importance of each effect to the frequency to each cell.

Problem Identification: (Mis-information-Task interruption simulation) Students' ability to identify problems was coded through the first scenario, the book mis-information scene. The presence of this behaviour was coded if the student(s) were observed either verbally or behaviourally noticing that something was wrong with their task (ie. "Hey what are you doing?", when the other student(s) came in and interrupted the first students' task).

Problem Identification was subjected to a saturated (3-way multi-frequency) Logit analysis. Problem Identification was posited as the dependent variable, whereas level of program received (none, two years, and one year) and subjects' gender were posited as independent variables. Useable data was obtained from one hundred and twenty-one subjects. All component two way contingency tables produced five cells, out of the possible twelve, with expected frequency counts fewer than the minimum 5 counts required. Despite this, all cells were adequately predicted by the saturated model after analysis. Standardized residuals were used to inspect the models' fit in individual cells. Most standardized residuals were small and none of the cells had a standardized residual which exceeded $z = 1.96$, $\alpha = .05$. Appendix R presents the observed and expected frequencies, along with their standardized residuals, in Table 17.

A non-hierarchical Logit analysis performed on the data for Problem Identification yielded a two-way association (main effect of program treatment level received) and the first order effect of the dependent variable, Problem Identification. The model was found to have adequate fit between the observed and expected frequencies, Likelihood ratio G^2 (7) = 10.97, $p = .14$. The strength of association between the D.V. and I.V.'s as denoted

by the concentration⁶ value was moderate; concentration = .12. This means that Problem Identification was adequately predicted by the independent variables. A summary of the model with the results of the significance tests (Partial Likelihood ratio G^2) and Loglinear parameter estimates in raw and standardized form appears in Table 18, whereas Table 19 presents the percentages of observed Problem Identification behaviour.

Overall, 82% of all students, regardless of program level and gender, were observed identifying the problem in the mis-information (task interruption) simulation. The percentages vary significantly with level of program treatment level received, however. When the three program groups are compared, we find that the problem inherent in the first simulation, was most often identified by the first year intervention students (93%). The Comparison group had the second highest percentage, with 85.5% of its' students identifying the problem. Out of the three groups, the second year intervention students were the poorest performers, with only 65.7% of the students identifying the inherent problem.

Further examination of these data were achieved through two planned orthogonal comparisons. Two, 2-tailed planned comparisons were performed (each significant result

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Concentration (Haberman, 1982) is a value that denotes a measurement of the strength of association between the variables under question. In this case, the concentration value tells how well Problem Identification is predicted by the independent variable, level of program received (See the SPSS inc. (1994) Advanced Statistics 6.1 manual, or Tabachnick & Fidell (1989) Using Multivariate Statistics, second edition, p. 272 and 305. This value is analogous to ETA squared found in Analysis of Variance techniques. However, a consultation of Haberman's article did not reveal how one identifies a poor, medium, or high association. Presumably these levels are identified in the same manner as stipulated by Cohen: .009 denotes a low or poor association, .10 denotes a moderate association, and .13 denotes a large association.

Table 18

Summary of logit model of Problem Identification and its' relationship to Level of Program received.

N= 121

Effect	Partial Association Chi-Square	Loglinear Parameter Estimate (Lambda)		Lambda/SE	
Problem Identification		YES ^a	NO	YES ^a	NO
	$X^2_{df(2)} = 53.00^{**}$	.3126	-.3126	2.99	-2.99
Verbal Problem Identification by Level of Program					
	$X^2_{df(2)} = 12.70^*$				
		YES	NO	YES	NO
	C ^b	.3026	-.3026	C ^b	2.12 -2.12
	Y2 ^c	-.4932	.4932	Y2 ^c	-3.36 3.36
	Y1 ^d	.1906	-.1906	Y1 ^d	1.25 -1.25

** p < .001.

* p < .05.

Note: a= YES and NO have been used in the table to signify the Presence or Absence of observed behaviour.

b= C denotes comparison group

c=Y2 denotes students receiving the program for two consecutive years.

d=Y1 denotes students receiving the program for only one year.

Table 19

Number of students (and percentages) observed identifying the problem in the Mis-information-Task interruption simulation: Main effect of Program Treatment level received (two years of training, one year of training, no training).

Event								Row Total	
Second year		First year		No training					
Presence									
23	(65.7%)	29	(93.5%)	47	(85.5%)	99	(81.8%)		
Absence									
12	(34.3%)	2	(6.5%)	8	(14.5%)	22	(18.2%)		
Column Total N									
35	(28.9%)	31	(25.6%)	55	(45.5%)	121	(100%)		

was determined with a set alpha of .05) to test two specific hypotheses. The first contrast tested the hypothesis that differences in problem identification ability would arise between the students receiving Social Problem Solving training for two consecutive years and those students receiving the Social Problem Solving training for one year. The second contrast tested the hypothesis that differences in problem identification ability would arise between program students and the Comparison students. Thus, the first contrast compared the second and the first year groups to each other, whereas the second contrast compared the Comparison group to the combined results of the second and first year program groups.

Results revealed that the differences between the second and first year groups, obtained through the observation of problem identification, were significant ($z = -2.52 < z = 1.96$, at $\alpha = .05$). Students receiving the program curriculum for two consecutive years were less likely to be observed identifying the problem when compared to those students receiving the program for the first time. Comparison students were not found to be significantly different from the combination of the second and first year students' results ($z = -1.90 > z = -1.96$, at $\alpha = .05$). None of the remaining interactions (two-way and three-way) with Problem Identification were statistically significant.

Brainstorming: Students' ability to generate multiple alternative solutions to misinformation problem in scene 1 was also coded. The presence of this behaviour was coded if the student(s) were observed verbally stating or behaviorally performing two or more different strategies. Thus, students had to have tried two or more strategies (ie. suggesting compromise, helping each other) before the presence of Brainstorming could be coded.

Brainstorming (mis-information -Task interference simulation) was subjected to a saturated (3-way multi-frequency) Logit analysis. Brainstorming was posited as the dependent variable, whereas level of program received (none, two years, and one year) and subjects' gender were posited as independent variables. Useable data was obtained from one hundred and twenty-one subjects. The saturated Logit model, analyzed all three way, two way and main effects. All component two way contingency tables displayed only two cells, out of the possible twelve, with expected frequency counts less than the minimum 5 counts required. Despite this, all cells were adequately predicted by the saturated model after analysis. Standardized residuals were used to inspect the model's fit in individual cells. Most standardized residuals were small, and two of the cells had a standardized residual which exceeded $z = 1.96$, $\alpha = .05$. Although standardized residuals of $z = 2.01$ and $z = 2.09$ are not unexpected given the twelve cells, these significant values implied that the fit of the model was not as effective in these cells. Appendix R presents the observed and expected frequencies, along with their standardized residuals, in Table 20.

A non-hierarchical Logit model was then performed on the data for Brainstorming. This analysis produced a model with one two-way association (main effect of gender) and the first order effect of the dependent variable, Brainstorming. The model was found to have an adequate fit between the observed and expected frequencies. Likelihood ratio G^2 (7) = 5.66, $p = .57$. The strength of association between the D.V. and I.V.'s as denoted by the concentration value was small; concentration = .08. This means that the generation of multiple solutions to the problem in scene 1 was not adequately predicted by the

independent variables. A summary of the model with the results of the significance tests (Partial Likelihood ratio G^2) and Loglinear parameter estimates in raw and standardized form appears in Table 21, whereas Table 22 presents the percentages of observed Brainstorming behaviour.

Overall, 26.4% of students, regardless of program level and gender, were observed generating multiple solutions (behaviourally) in the mis-information (task interruption) simulation. The percentages vary significantly with gender of students, however. 37.5% of boys and 16.9% of girls generated at least two different solutions in scene 1. Thus, it appears that boys, when faced with a problematic/conflictual situation are more likely to try several alternative solutions, when compared to girls.

The present model did not find a significant main effect of program treatment level (ie. no intervention, one year of intervention, two years of intervention). Nevertheless, further examination of data for program treatment level received were achieved through two, 2-tailed orthogonal planned comparisons. The first contrast tested the hypothesis that differences in brainstorming ability would arise between the students receiving Social Problem Solving training for two consecutive years and those students receiving the Social Problem Solving training for one year. The second contrast tested the hypothesis that differences in brainstorming ability would arise between program students and the Comparison students.

Results revealed that the differences between the second and first year groups, obtained through the observation of brainstorming, were not significant ($z = -1.44 > z = 1.96$, at $\alpha = .05$). Similarly Comparison students were not found to be significantly

Table 21

Summary of logit model of Brainstorming and its' relationship to Gender.

N= 121

Effect	Partial Association Chi-Square	Loglinear Parameter Estimate (Lambda)		Lambda/SE	
Behavioural Brainstorming	$X^2_{df(1)} = 27.95^{**}$	YES ^a	NO	YES	NO
		-.6006	.6006	-5.57	5.57
Behavioural Brainstorming by Gender of students	$X^2_{df(1)} = 6.82^*$				
		YES	NO	YES	NO
		Male .244	-.244	2.61	-2.61
		Female -.244	.244	-2.61	2.61

** p < .001.

* p < .05.

Note: a= YES and NO have been used in the table to signify the Presence or Absence of observed behaviour.

Table 22

Number of students (and percentages) observed Brainstorming in the Mis-information-Task interruption simulation: Main effect of Gender.

Event	Boys		Girls		Row Total	
Presence	21	(37.5%)	11	(16.9%)	32	(26.4%)
Absence	35	(62.5%)	54	(83.1%)	89	(73.6%)
Column Total N	56	(46.3%)	65	(53.7%)	121	(100%)

different from the combination of the second and first year students ($z = -0.61 > z = -1.96$, at $\alpha = .05$). None of the remaining interactions (two-way and three-way) were statistically significant.

Helping/Sharing behaviour (mis-information-task interruption): Helping/Sharing, was coded as a potential solution to the problem inherent in the first simulation. The presence of this behaviour was coded only when the student(s) either asked each other for or gave each other help in some way (ie. "Will you help me?", or the students reached out and helped them place the books on the table).

The data obtained for the Helping strategy was subjected to a saturated (3-way multi-frequency) Logit analysis. Helping was posited as the dependent variable, whereas level of program received (none, two years, and one year) and subjects' gender were posited as independent variables. Useable data was obtained from one hundred and twenty-one subjects. The saturated Logit model, analyzed all three way, two way and main effects. All component two way contingency tables produced expected frequency counts in excess of 5. All cells were adequately predicted by the saturated model after analysis. Standardized residuals were used to inspect the models' fit in individual cells. Most standardized residuals were small, and none of the cells produced standardized residuals greater than 1; the model therefore, fit all cells effectively. Appendix R presents the observed and expected frequencies, along with their standardized residuals, in Table 23.

A non-hierarchical Logit model was then performed on the data for the Helping strategy. This analysis produced a model with one two-way association (Helping by

program level) and the first order effect of the dependent variable, Helping. The model was found to have an adequate fit between the observed and expected frequencies, Likelihood ratio $\chi^2(7) = 5.81$ $p = .44$. The strength of association between the D.V. and I.V.'s as denoted by the concentration value was small; concentration = .08. Thus, whether or not students help each other in order to resolve the mis-information scenario was not adequately predicted by the independent variables. A summary of the model with the results of the significance tests (Partial Likelihood ratio χ^2) and Loglinear parameter estimates in raw and standardized form appears in Table 24, whereas Table 25 presents the percentages of observed Helping behaviour.

Overall, 17% of all students, regardless of program level and gender, were observed helping each other during the process of problem resolution in scene 1. The percentages vary significantly with level of program level received, however. Table 25 presents the Percentages of observed Helping behaviour. When the three program groups are compared, we find that 27% of students in the comparison group were observed using the helping strategy as a potential solution to the inherent problem. The second year intervention students had the second highest percentage, with 9% of its' students using the helping strategy as a potential solution to the problem. Out of the three groups, the first year intervention students were the poorest performers, with only 7% of students in the first year group using the Helping strategy as a probable solution.

Further examination of these data were achieved through two, 2-tailed orthogonal planned comparisons. The first contrast tested that hypothesis differences in helping / sharing tendencies would arise between the students receiving Social Problem Solving

Table 24

Summary of logit model of Helping strategy and its' relationship to Level of Program received.

N= 121

Effect	Partial Association Chi-Square	Loglinear Parameter Estimate (Lambda)		Lambda/SE	
Helping strategy		YES ^a	NO	YES ^a	NO
		-2.674	2.674	-3.36	3.36
	$X^2_{df(2)} = 59.24^{**}$				
Helping strategy by Level of Program					
		YES ^a	NO	YES ^a	NO
	C ^b	1.693	-1.693	C ^b	2.14
	Y2 ^c	0.307	-0.307	Y2 ^c	0.32
	Y1 ^d	0.000	0.000	Y1 ^d	0.00

** p < .001

* p < .05.

Table 25

Number of students (and percentages) observed Helping each other in the Mis-information-Task interruption simulation: Main effect of Program Treatment level received (two years of training, one year of training, no training).

Event							Row Total	
	Second year		First year		No training			
Presence	32	(91.4%)	29	(93.5%)	15	(27.3%)	20	(16.5%)
Absence	3	(8.6%)	2	(6.5%)	40	(72.7%)	101	(83.5%)
Column Total N	35	(28.9%)	31	(25.6%)	55	(45.5%)	121	(100%)

training for two consecutive years and those students receiving the Social Problem Solving training for one year. The second contrast tested the hypothesis that differences in helping / sharing tendencies would arise between program students and the Comparison students.

Results revealed that the differences between the second and first year groups, obtained through the observation of the students helping one another were not significant ($z = 0.277 < z = 1.96$, at $\alpha = .05$). Comparison students, on the other hand, were found to be significantly different from the combination of the second and first year students' results ($z = -2.64 > z = 1.96$, at $\alpha = .05$). When compared to the combination of the two program groups' results, Comparison students, were found to use the helping strategy more often in their attempts to resolve the problem in scene 1. None of the remaining interactions (two-way and three-way) with the Helping strategy were statistically significant.

Suggested Verbal Compromise: (mis-information-task interruption). The suggestion of Verbal Compromise was one of the strategies coded during the mis-information scene. The presence of this strategy was only coded if the students voiced their desire to work together, in their effort to resolve the problem (ie. "You help me put the books on the table, and then I'll help you put them back in the box").

Suggested Verbal Compromise (scene 1) was subjected to a saturated (3-way multi-frequency) Logit analysis. Suggested Verbal Compromise was posited as the dependent variable, whereas level of program received (none, two years, and one year) and subjects' gender were posited as independent variables. Useable data was obtained from one hundred and twenty-one subjects. The saturated Logit model, analyzed all three way, two way and main effects. All component two way contingency tables produced six

cells, out of the possible twelve, with expected frequency counts fewer than the minimum 5 counts required. Despite this, all cells were adequately predicted by the saturated model after analysis. Most standardized residuals were small, and none of the cells produced standardized residuals greater than 1; the model therefore fit all cells effectively.

Appendix R presents the observed and expected frequencies, along with their standardized residuals, in Table 26.

A non-hierarchical Logit model was then performed on the data for Suggested Verbal Compromise. The only significant effect produced by this model was for the first order effect of the dependent variable, Suggested Verbal Compromise (partial $\chi^2_{(1)} = 81.04, p = .000$). The model was found to have an adequate fit between the observed and expected frequencies, Likelihood ratio $G^2(7) = 4.51, p = .72$. The strength of association between the D.V. and I.V.'s as denoted by the concentration value was extremely small; concentration = .01. Thus, whether or not students suggest compromise as a potential strategy for problem resolution was not very adequately predicted by either of the independent variables.

Overall, 19% of all students, regardless of program level and gender, suggested that they work together in order to rectify the misinformation problem. A look at the Loglinear parameter estimates (normally shown in table format) indicated that the Comparison group contributed to this significant effect. Further examination of the data through two, 2-tailed planned orthogonal comparisons performed on program treatment level received (no intervention, one year of intervention, two years of intervention) produced no other significant results. None of the remaining effects (two-way and three-

way) with the Compromise strategy were statistically significant.

Suggested Verbal Compromise: (Limited resource task). Suggested Verbal Compromise was also coded in the second scenario, the limited resource task, where students had to construct a "LEGO" figurine. Again the presence of this behaviour was only coded if the students voiced their desire to work together, in their effort to resolve the problem (ie. "Lets combine our pieces and work together to build one "LEGO" figurine").

A (3-way multi-frequency) Logit analysis was performed on the data obtained for this behavioural category obtained in the second simulation. Again, Suggested Verbal Compromise was posited as the dependent variable, whereas level of program received (none, two years, and one year) and subjects' gender were posited as independent variables. Useable data was obtained from one hundred and twenty-one subjects. The saturated Logit model, analyzed all three way, two way and main effects. All component two-way contingency tables produced four cells, out of the possible twelve, with expected frequency counts fewer than the minimum 5 counts required. Despite this, all cells were adequately predicted by the saturated model after analysis. Most standardized residuals were small, and 3 of the cells produced standardized residuals greater than 1; yet the model still fit all cells effectively as none of these standardized residuals were greater than $z = 1.96$, at $\alpha .05$. Appendix R presents the observed and expected frequencies, along with their standardized residuals, in Table 27.

A non-hierarchical Logit model was then performed on the data for Suggested Verbal Compromise. The only significant effect produced by this model was for the first

order effect of the dependent variable, Suggested Verbal Compromise (partial $\chi^2_{(1)} = 42.84, p = .000$). The model was found to have an adequate fit between the observed and expected frequencies, Likelihood ratio $G^2(7) = 6.59, p = .47$. The strength of association between the D.V. and I.V.'s as denoted by the concentration value was extremely small; concentration = .01. Thus, whether or not students suggested compromise as a potential strategy for problem resolution was not very adequately predicted by either of the independent variables.

Overall, 22% of all students, regardless of program level and gender, suggested that they work together in order to rectify the limited resource task encountered in scene 2. Loglinear parameter estimates (normally shown in table format) indicated that the Comparison group contributed to this significant effect. Further examination of the data through two, 2-tailed planned orthogonal comparisons performed on program treatment level (no intervention, one year of intervention, two years of intervention) produced no other significant results. None of the remaining effects (two-way and three-way) with the Compromise strategy were statistically significant.

Expression of Feelings (mis-information simulation) The expression of one's personal Feelings was another behaviour coded from the behavioural simulations. The presence of this behaviour was coded if the students were observed either stating a feeling ("urgh! This makes me mad) or behaviourally expressing a feeling (ie. smiling and laughing).

A (3-way multi-frequency) Logit analysis was performed on the data obtained for this behavioural category. Expression of Feelings was posited as the dependent variable.

whereas level of program received (none, two years, and one year) and subjects' gender were posited as independent variables. Useable data was obtained from one hundred and twenty-one subjects. The saturated Logit model, analyzed all three way, two way and main effects. All component two-way contingency tables produced expected frequencies in excess of five. Most standardized residuals were small, and 3 of the cells produced standardized residuals greater than 1; yet the model still fit all cells effectively as none of these standardized residuals were greater than $z = 1.96$, at $\alpha .05$. Appendix R presents the observed and expected frequencies, along with their standardized residuals, in Table 28.

A non-hierarchical Logit model was then performed on the data for Expression of Feelings. The only significant effect produced by this model was for the first order effect of the dependent variable, Expression of Feelings (partial $\chi^2_{(1)} = 6.08$, $p = .014$). The model was found to have an adequate fit between the observed and expected frequencies. Likelihood ratio $G^2_{(7)} = 6.52$, $p = .48$. The strength of association between the D.V. and I.V.'s as denoted by the concentration value was extremely small; concentration = .02. Thus, whether or not students expressed their own personal feelings during the mis-information task was not very adequately predicted by either of the independent variables.

Overall, 61.2% of all students, regardless of program level and gender, were observed expressing their feelings during the mis-information task. Loglinear parameter estimates (normally shown in table format) indicated that the first year intervention group contributed to this significant effect. Further examination of the data through two, 2-tailed planned orthogonal comparisons performed on program treatment level received (no

intervention, one year of intervention, two years of intervention) produced no other significant results. None of the remaining effects (two-way and three-way) with the Compromise strategy were statistically significant.

Expression of Feelings (Limited resource simulation) The expression of one's personal Feelings was also coded in the limited resource task, where students had to construct a "LEGO" puzzle, containing several missing pieces. Again the presence of this behaviour was coded if the students were observed either stating a feeling ("urgh! This makes me mad) or behaviourally expressing a feeling (ie. smiling and laughing).

A (3-way multi-frequency) Logit analysis was performed on the data obtained for this behavioural category. Expression of Feelings was posited as the dependent variable, whereas level of program received (none, two years, and one year) and subjects' gender were posited as independent variables. Useable data was obtained from one hundred and twenty-one subjects. The saturated Logit model, analyzed all three way, two way and main effects. All component two-way contingency tables produced expected frequencies in excess of five. Most standardized residuals were small, and 3 of the cells produced standardized residuals greater than $z = 1.96$, at $\alpha .05$. Although a standardized residual of $z = 1.99$ is not unexpected given the twelve cells, this significant value implied that the fit of the model was not as effective in these cells. Appendix R presents the observed and expected frequencies, along with their standardized residuals, in Table 29.

A non-hierarchical Logit model was then performed on the data for Expression of Feelings. No effects (first-order, second-order and third-order) with Expression of Feelings in the Limited Resource task were statistically significant.

Summary of Behavioral Simulations: Between Subjects Design

This section presents a summary of the results obtained through two structured potentially conflict-laden behavioral simulations. Preliminary data screening, described in the method section, produced seven behavioral categories suitable for further analysis: Problem Identification, Expression of Feelings, Suggested Verbal Compromise, Helping/Sharing strategy, and Brainstorming for the first simulation and Suggested Verbal Compromise and Expression of Feelings for the second simulation. A special case of Loglinear analysis, Logit analysis, was used to analyze the seven behavioral categories.

Overall, 82% of all students, regardless of program implementation level and gender, were observed identifying the problem inherent in the mis-information-task interruption simulation. Of these students, 93% of First year implementation students, 85.5% of Comparison students, and 65.7% of Second year implementation students were observed identifying the problem inherent in the mis-information- task interruption task. Planned comparisons verified that the differences between the two implementation groups were in fact significant. Thus, it seems that the students who received the program for two consecutive years were the least likely group to actually identify the problem. Of all three groups, the First year implementation students were the most likely to identify the problem, whereas the Comparison students came in a close second. However, when brainstorming was analyzed, only 26.4% of all students, regardless of program implementation level and gender, were observed generating more than two potential solutions to the problem inherent in the mis-information-task interruption simulation. Of those students, 37.5% of male students and 16.9% of female students were observed

producing brainstorming behaviour. Thus, when confronted with a conflictual situation, males are more likely to generate several alternative solutions, when compared to female students.

Potential solutions to the behavioral simulations consisted of Helping / Sharing behaviour and Suggested Verbal compromise. Results revealed that only 17% of all students, regardless of program implementation level and gender, were observed helping each other during the mis-information -task interruption task. Of those students, 27% of Comparison students, 9% of Second year implementation students, and 7% of First year implementation students used helping/sharing as a potential solution to the problem in the mis-information -task interruption simulation. Planned comparisons revealed that the differences between the Comparison students and the combined results of the two implementation groups were significant. Thus, when confronted with the problem in the first simulation, it is the Comparison students who are more likely to help one another resolve the problem.

Similarly, only 19% of all students, regardless of program implementation level and gender, suggested that they work together in order to rectify the problem in the mis-information -task interruption simulation, whereas only 22% of all students, regardless of program implementation level and gender, suggested that they work together in order to rectify the problem in the Limited-resource task simulation. No other effects were found to be significant.

Whether or not students expressed their feelings during the simulations was also coded behaviourally. Overall, 62.2% of all students, regardless of program

implementation level and gender, where observed expressing their feelings in the mis-information -task interruption simulation, whereas no such effects were found in the limited resource task.

Part C: Teachers' Questionnaires: Between subjects Analysis

This last section presents the results obtained from data collected from participating teachers, who provided responses to several questionnaires. Three questionnaires were provided; The School Climate Questionnaire (Lam, 1989), the School Social Behavior Scales - Self-Management Skills (Merrell, 1993): a scale measuring the frequency with which students are observed engaging in prosocial behaviours, and the Teacher's Implementation/ Utilization Questionnaire (Children Learning for Living Research Committee, 1995), a questionnaire measuring how often teachers and students utilize curriculum material. Data obtained on these three questionnaires, were used to determine the impact the implementation of the program curriculum had on the teachers' perceptions of student attitudes and behaviour.

The School Climate Questionnaire

The School Climate Questionnaire (Lam, 1989), was designed to measure changes in the students' attitudes towards their school. Unfortunately, time constraints and school logistics prevented us from distributing the School Climate Questionnaire to wide variety of school personnel. Only those teachers involved in the program dissemination phase answered the questionnaire. Out of a possible twelve teachers, only eight returned a completed School Climate Questionnaire. Thus, as this sample was too small to make any viable inferences concerning potential changes in teachers' perceptions of School

Climate, this data was discarded and no further analysis were performed.

The School Social Behavior Scales - Self-Management Skills

The Self-Management skills scale adapted from Merrell's School Social Behavior Scales contains items that describe a variety of socially observable behaviours, that students may or may not have exhibited. The scale yielded three separate total scores: Self-Management (item # 1, 3, 4, 5, 6, 10, 12, 14), Interpersonal Skills Score (item # 7, 9, 16), and a Hostile/Irritable score (item # 2, 8, 11, 13). The Self-Management scores range from 1 - 40, the Interpersonal Skills scores range from 1 - 15, and the Hostile/Irritable scores range from 1 - 20.

Twelve teachers provided usable data for 112 students. Forty-five students received no intervention (Comparison group), 35 students received the program curriculum for one session only (New Program group), and 32 students received the program curriculum for two consecutive sessions (Follow-up) group.

A 3 (Program: second year intervention, first year intervention, no intervention) X 2 (Gender: male, female) X 2 (Grade: five, six) between subjects Manova was performed on the three total scores obtained on the School Social Behavior Scales - Self-Management Skills: Self-Management Skills score, Interpersonal Skills score, and a Hostile/Irritable score. As the Homogeneity of Variance/Covariance Assumption was not met (Box's M)⁷, all multivariate results reported in this section are interpreted with Pillai's trace criterion.

⁷ Box's M = 129.5303
 with F (66, 6104) DF = 1.63109, p = .001 (Approx.)
 Chi-Square with 66 DF = 109.05240, p = .001 (Approx.)

Interaction of Program treatment level by Gender: Results revealed that the combined total scores were significantly affected by the Program by Gender interaction, $F(6, 194) = 2.63$, $p = .018$, $\eta^2 = .08$, Power = .85. Univariate tests revealed that none of the three total scores contributed significantly to the multivariate interaction of Program by Gender; Self-Management Skills, $F(2, 98) = 1.15$, $p = .321$, $\eta^2 = .02$, Power = .25, Interpersonal Skills score, $F(2, 98) = 2.19$, $p = .117$, $\eta^2 = .04$, Power = .44, and Hostile/Irritable score, $F(2, 98) = 0.65$, $p = .523$, $\eta^2 = .01$, Power = .16. Thus, the significance of the interaction between Program and Gender is attributed to the specific linear combination of the three scores derived from the School Social Behavior Scale. The Univariate tests reported above lead to the speculation that both the Self- Management Skills score and the Interpersonal Skills score, are the two variables that are contributing to the effect, whereas the Hostile/Irritable score is probably not contributing as much.

Discriminant analysis (obtained through the Manova Analysis) did not support this speculation. Instead, the discriminant analysis derived only one significant discriminant function, $\chi^2_6 = 12.20$, leading to a Self-Management skills (correlation = .372 and standardized coefficient of 1.710) - Hostile / Irritable continuum (correlation = .197 and standardized coefficient of 1.691), where the groups were differentiated from each other on the basis of which program treatment level and gender they belonged to. The Interpersonal Skills score was considered to be a redundant variable (correlation = .321 and standardized coefficient of 0.095).

Group means (and standard deviations) were used to further interpret the Program treatment level by Gender interaction as established by the discriminant function

Male students, in the second year implementation group, were perceived by their teachers as being more likely to engage in self-restraint and compliant behaviours and less likely to engage in Hostile/Irritable behaviours when compared to teachers perceptions of male students in the Comparison group. On the other hand, teachers of male students in the second year implementation group, perceived them as being less likely to engage in self-management behaviours and more likely to engage in Hostile/Irritable behaviours when compared to students in the first year implementation group. When the means for the comparison group were compared to the two implementation groups, it was found that Comparison group teachers perceived their male students as being the least likely to display Self- Management skills and the most likely to display Hostile/Irritable behaviours.

Girls were perceived in a dissimilar fashion. Second year implementation teachers perceived their female students, as being less likely to engage in Self-Management behaviours and less likely to engage in Hostile/Irritable behaviours when compared to first year and Comparison students. First year implementation teachers perceived their female students, as being more likely to engage in Self-Management behaviours when compared to second year implementation students, but when compared to Comparison students, females in the first year implementation group were less likely to engage in these prosocial behaviours. When means for Hostile/Irritable behaviours are compared, the females in the first year implementation group, engaged in anti-social behaviours more frequently than females in the second implementation group, whereas when compared to Comparison group females, they were less likely to engage in such anti-social behaviours.

Interestingly, means suggest that Comparison group females were more likely to engage in

both prosocial and anti-social behaviours when compared to the two implementation groups. Furthermore, we find that Comparison, Second year implementation, and First year implementation boys, were less likely to engage in Self-Management behaviours and more likely to engage in Hostile/Irritable behaviours when compared to Comparison, Second year, and First year implementation girls, respectively.

The Manova analysis also revealed that the combined scores were significantly affected by the main effect of Program treatment level, $F(6, 194) = 2.44$, $p = .027$, $\eta^2 = .07$, Power = .82. Univariate tests revealed that none of the three total scores contributed significantly to the multivariate interaction of Program treatment level: Self-Management Skills, $F(2, 98) = 0.56$, $p = .573$, $\eta^2 = .01$, Power = .14, Interpersonal Skills score, $F(2, 98) = 0.13$, $p = .874$, $\eta^2 = .003$, Power = .07, and Hostile/Irritable score, $F(2, 98) = 1.63$, $p = .201$, $\eta^2 = .03$, Power = .34. Thus, the significance of the main effect of Program treatment level is attributed to the specific linear combination of the three scores derived from the School Social Behavior Scale. The Univariate tests reported above lend to the speculation that the Hostile/Irritable score is contributing to the effect, whereas the Self-Management Skills score and the Interpersonal Skills score are probably not contributing as much. Second year implementation students were perceived by their teachers as being the least likely group to engage in Hostile/Irritable behaviours. First year implementation students were less likely than comparison students, but more likely than Second year implementation students, to be perceived by their teachers as engaging in negative, Hostile/Irritable behaviours. Comparison students were perceived by their teachers as being more likely to engage in negative, Hostile/Irritable behaviours when

compared to the mean scores of the two implementation groups.

The combined scores were also significantly affected by the main effect of Gender, $F(3, 96) = 3.57, p = .017, \eta^2 = .10, \text{Power} = .77$. Univariate tests revealed that all three total scores contributed significantly to the multivariate interaction of Program treatment level; Self-Management Skills, $F(1, 98) = 6.58, p = .012, \eta^2 = .06, \text{Power} = .72$, Interpersonal Skills score, $F(1, 98) = 9.75, p = .002, \eta^2 = .09, \text{Power} = .87$, and Hostile/Irritable score, $F(1, 98) = 7.58, p = .007, \eta^2 = .07, \text{Power} = .78$. Descriptive statistics are presented in Table 30. Means suggest that girls, regardless of Program treatment level, were perceived by their teachers as being more likely to engage in self-restraining and compliant behaviours when compared to the boys. Furthermore, girls were more likely to engage in positive Interpersonal interactions when compared to boys. Boys, on the other hand, were more likely to engage in negative, Hostile/Irritable behaviours than girls were, when teachers perceptions were compared. Neither the main effect of Grade, nor any of the interactions with Grade were found to be significant ($p > .05$). Appendix P presents details of the multivariate analysis in Table 31.

Teacher's Implementation/ Utilization Questionnaire

This open-ended questionnaire was created in an attempt to gather some information about the process underlying the implementation of curriculum material to the students by their teachers. In particular, this questionnaire asks the teachers to note how often teachers and students utilize certain aspects of the curriculum material. As this questionnaire was only applicable to those four schools in which the curriculum was implemented, teachers in the Comparison school did not receive the material. Out of a

Table 30

Teachers' perceptions of students' prosocial behaviour: Main effect of Gender

Factor	Boys	Girls
Self	34.57 (6.89)	37.95 (7.33)
Inter	13.63 (3.23)	15.50 (2.88)
Hostile	6.98 (2.62)	5.54 (2.63)
Notes:	Self = Self-Management Skills Factor Inter = Interpersonal Skills Factor Hostile = Hostile/Irritable Factor	

possible eight teachers, only six returned a completed questionnaire (4 were returned from the Second year implementation schools, and 2 were returned from the First year implementation schools).

Responses to the five open-ended questions are displayed in Table 32. The first question asked teachers if program posters were displayed within the classroom. Three teachers in the Second implementation schools and one teacher in the First year implementation schools answered "YES". The second question asked the teachers if their class's Problem Solving Corner was equipped with certain materials (ie. paper, pencils, posters, walkmans etc.). Only one teacher in the Second year implementation schools and one teacher in the First year implementation schools, responded in the positive (ie. "YES"). The third question asked the teachers if they had reviewed any of the lessons. Two teachers in the second year implementation schools and only one teacher in the First year implementation schools answered "YES". The fourth question asked teachers if they had used any reinforcement / Booster activities during their lessons. Two teachers in the Second year implementation schools and two teachers in the First year implementation schools answered "YES". Finally, the last question asked teachers if they had used any "Role Play" techniques for classroom conflicts. Three teachers in the Second year implementation schools and two teachers in the First year implementation schools answered "YES".

Summary of Teacher's responses: Between Subjects analysis

A significant multivariate interaction of Program by Gender on the School Social Behaviour scale was found. Unfortunately, Univariate tests for each of the three factor

Table 32 Teacher's Implementation/Utilization Questionnaire

		Are posters displayed ?	Are materials available in Problem Solving Corner?	Have you reviewed any of the lessons?	Have you done any "booster" activities or used reinforcement sheets?	Have you used "role play" for classroom conflicts?
Program Year						
Year 1	Teacher 1	Y	Y	Y	N	Y
	Teacher 2	Y	N	N	N	N
	Teacher 3	Y	N	N	Y	Y
	Teacher 4	N	N	Y	N	Y
Year 2	Teacher 1	N	N	Y	Y	Y
	Teacher 2	Y	Y	Y	N	Y
Total	Yes	4	2	4	2	5
	No	2	4	2	4	1

scores did not yield significant differences. A Discriminant analysis produced a Self-Management- Hostile/Irritable continuum, where the interpersonal skills factor score was deemed redundant.

Means revealed that all the male students were perceived by their teachers as being less likely to engage in Self-Management behaviours and more likely to engage in Hostile/Irritable behaviours than the female students. Furthermore, teachers reported that second year male students were more likely to engage in Self-Management behaviours and less likely to engage in Hostile/Irritable behaviours than were Comparison male students. However, second year males were less likely to engage in Self-Management behaviours and more likely to engage in Hostile/Irritable behaviours than first year males. Comparison students were least likely to engage in Self-Management behaviours and the most likely to engage in Hostile/Irritable behaviours when compared to the two implementation groups.

Teachers also reported that Comparison females were the least likely to engage in Self-Management behaviours, second year females were next, followed by first year females who were perceived by their teachers, as being the most likely to engage in Self-Management behaviours. Moreover, teachers reported that first year females were more likely to engage Hostile/Irritable behaviours than Second year female students, whereas when compared to Comparison female students, they are less likely to engage in such behaviours. Interestingly, Comparison female students are more likely to engage in both prosocial and anti-social behaviours when compared to the two implementation groups.

Teachers were also asked to complete an open-ended questionnaire (Teacher's

Implementation / Utilization Questionnaire), which asked whether or not program components such as posters and Problem solving corners were readily available to students and whether or not teachers had used lesson materials to either redo specific lessons or Role play conflict scenarios.

Out of a possible six teacher respondents, four teachers stated that they did display program posters on their walls, and had in fact reviewed some of the curriculum lessons with their students. Interestingly, while five classrooms had actually used Role Play for conflict situations, four classroom teachers stated that they had never participated in "Booster" (reinforcement) activities. Finally, four classroom teachers stated that they did not have materials suitable for a Problem Solving corner, stating that their students rarely used this Calming Down resource.

Discussion

The present study was designed to evaluate the impact of a Conflict Management training program on middle school children's cognitive and behavioral social problem solving skills. At the time that this study was first introduced, the Conflict Management program was entering it's second year of implementation. With the re-implementation of the program, documenting the short and long-term impact on students' cognitive Social Problem Solving skills became the primary purpose of the present study. Furthermore, as the extant literature has produced equivocal results concerning students' actual skill usage (eg. Urbain & Kendall, 1985; Tisdale & St. Laurence,) a second purpose of this study was to determine whether or not students were actually applying these skills to resolve their real-life interpersonal conflicts. In an effort to accomplish these goals, a multi-

method assessment strategy was implemented. Students in grades five and six completed several self-report questionnaires tapping their overall attitudes towards conflict, their typical responses towards conflict, and their specific knowledge of the curriculum material. Also, students' application of these cognitively learned skills were assessed through two, potentially conflictual, structured behavioral simulations. Furthermore, teachers completed a rating scale indicating the frequency with which they observed their students engaging in prosocial behaviours. In addition, some information on the use and implementation of curriculum lessons and materials was also gathered as a means of ascertaining program fidelity. In the following pages, a more detailed review of the results will be presented, along with the various reasons that may have produced these particular results. This will be followed by a description of the study's limitations, conclusions, and recommendations.

Between Groups: Assertive Behaviour, Attitudes towards Conflict, and Curriculum Acquired Knowledge

With the re-implementation of the program, documenting the short and long term impact on students' cognitive social problem solving skills became the primary purpose of the present study. With this purpose in mind, three hypotheses were generated. First, it was hypothesized that, relative to a no treatment Comparison group, those students receiving the Conflict Management curriculum would demonstrate superior cognitive problem solving skills. A related hypothesis, assumed that differences in students' problem solving abilities would emerge when comparisons between the two program groups (ie. two years of program implementation vs. one year of program implementation) would be scrutinized. The third hypothesis is discussed at in

a subsequent section. Three different self-report questionnaires were utilized to test these hypotheses. One questionnaire measured the student's likelihood to respond to conflicts in an assertive manner (CABS). Another questionnaire measured the students attitudes towards conflicts, skills and their use, self-esteem, and interpersonal relations (SAAC). Finally, the third questionnaire measured the amount of curriculum knowledge acquired through exposure to the program material (Specific Knowledge Questionnaire).

Exposure to the Conflict Management curriculum did not produce any discernable differences between the three groups of students; those students who received the program curriculum (ie, second year and first year implementation students) were not more assertive (CABS), they did not display a more positive attitude towards conflict (SAAC), nor did they gain a greater amount of curriculum knowledge (Specific Knowledge Questionnaire) relative to a no treatment comparison group. Also, when the two program groups were compared to each other, results revealed that the differences between the two program groups were sparse.

Subsequent analysis performed on the three different questionnaires' factor scores revealed some variability between the three program groups. For instance, planned comparisons revealed that the first year implementation students were more likely than second implementation year students, to resolve their conflicts in a passive, non - assertive, manner (CABS); no differences between the two program groups and Comparison students were found. Similarly, planned comparisons on the SAAC factor scores, indicated that the program students, relative to the no treatment Comparison students, perceived themselves as having better social skills and stronger interpersonal

relationships. Differences between the two program groups, however, were not significant. Unfortunately, when the five factor scores on the Specific Knowledge questionnaire were examined, a significant main effect of program was not revealed. Program students, relative to the no treatment comparison group, did not appear to have gained more a) efficient conflict resolution skills, b) knowledge concerning the plethora of strategies available for effective conflict resolution, c) knowledge concerning the successive steps necessary for effective social problem solving, d) knowledge concerning how to recognize and express feelings in themselves and others, and e) more knowledge concerning the necessity of "Calming Down" before approaching the other party.

The present study's results are in contrast to Weissberg's (1988; cited in Elias & Weissberg, 1989) study which found that students receiving the program for two years, but not one year, showed significant gains in social problem solving skills, relative to no-treatment control students. Furthermore, several other longitudinal program evaluations, conducted by Battistich and colleagues (Battistich, et al., 1989; Battistich, et al., 1990; Battistich, et al., 1991; Solomon, Delucchi, & Solomon, 1989) produced results antithetic to the present study. Following one cohort of children for a period of five years, these authors found that trained children displayed an increase in the use of prosocial behaviours when challenged with interpersonal conflicts (Battistich et al., 1989) and that they had developed a greater understanding of what constituted a problem and that they developed a greater sensitivity for the needs and feelings of other children (Solomon et al., 1989), relative to a no treatment control.

Support, however, for the present study's results, can be seen in an investigation

reported by Astri (1996), who also attempted to ascertain the impact of the first time delivery of the same Conflict Management curriculum (see Astri, 1996, and the method section of the present study for a description). In Astri's study, findings indicated that there were no significant differences between the program and no treatment comparison students on the CABS and SAAC total scores. Interestingly, significant differences between program and comparison students were found on Astri's (1996) General Knowledge questionnaire; the questionnaire's ten questions was a measure of acquired curriculum knowledge. Program students, relative to comparison students "increased their knowledge of program concepts and their knowledge of constructive solutions" (p. 102). However, as these two questionnaires are dissimilar to each other (ie. ten open-ended vs. 22 multiple choice questions) comparisons between these two findings should be made with caution.

Despite the limited program effects, between groups analysis revealed that there were significant gender differences across the three groups. Overall, girls were more assertive and less aggressive, than boys. Teacher responses substantiated the gender differences. Overall, male students, regardless of program treatment level, were perceived as being more likely to engage in aggressive, hostile behaviours in and out of the classroom, relative to female students. Results indicated that girls, relative to boys, were a) more attached and committed to the school environment, b) perceived themselves as having better conflict resolution / problem solving skills, and c) had a better grasp of the underlying social skills necessary for smooth interpersonal relationships. Furthermore, relative to boys, girls a) had gained more knowledge concerning the construct of conflict

and its' resolution, b) were more likely to follow the social problem solving process c) were more likely to have learned that there are a variety of strategies that could be used in effective conflict resolution, and d) were more likely to recognize and express feelings during a conflict. Interestingly, girls were less likely to suggest that "Calming Down", when angry, was an effective way of preventing a needless argument. When compared to Astri's (1996) findings, the present study, for the most part, did not support her results. In both studies, boys were found to be less assertive and more aggressive than girls. The previous investigation, reported that there were no gender differences in their attitudes towards conflict or acquired curriculum knowledge, in contrast to the present study.

Gender differences such as those obtained in the present investigation are not uncommon. Research on gender differences in the area of aggression has indicated that male subjects are more likely to react to conflict situations (and other displeasing or frustrating situations) in a physically aggressive manner, whereas female subjects tend to react in a more assertive, sometimes passive manner (Battistich, Watson, Solomon, & Solomon, 1989; Chung & Asher, 1996). Thus, it is possible that the obtained results are just replicating what previous research has already established (Maccoby & Jacklin, 1974). However, caution in interpretation is warranted, as the CABS was incapable of detecting more subtle forms of aggression, often endowed to female subjects. For instance, Crick and Grotpeter (1995), among others, have postulated and shown that overall, males tend to be more physically aggressive whereas females tend to display "relational" aggression (eg. socially exclusive; alienation, manipulation of peers). That is, females are more likely to display aggressive behaviours that cause others psychological

and/or social harm (Block, 1983; Crick & Grotpeter, 1995; Eagly and Steffen, 1986; Fleshbach, 1969, 1970; Josphson & Colewill, 1978; Maccoby, 1990; Maccoby & Jacklin, 1974; Miller, Danaher, & Forbes, 1986; Parke & Slabby, 1983). Given that the CABS did not test for subtle, "relational" forms of aggression, it is not known for certain if these significant differences between the genders would have been found.

Also, the present study's findings concerning gender differences on both the CABS and SAAC factor scores support other research suggesting that males and females, in general, view interpersonal relationships differently. That is, girls are more concerned with the maintenance of smooth interpersonal relationships, whereas boys, although concerned about relationships, are more likely to be concerned with issues of dominance (Maccoby & Jacklin, 1974; Crick & Grotpeter, 1995). For example, Miller, Danaher, and Forbes (1986) have suggested that when confronted with conflicts, females are more likely to behave in ways that diffuse and /or mitigate the situation in their interest to maintain personal harmony. Boys, on the other hand, seem to engage in physical and forceful behaviours in their interest to attain goals (ie. they try to be the dominant and / or controlling figure in the interaction by using physical force). Thus, it is possible to speculate that the present results occurred because the girls, in their need to maintain harmony in their relationships, were more motivated to learn the specific conflict resolution skills taught within the program curriculum. This premise seems likely, as on the SAAC and Specific Knowledge Questionnaires, girls, relative to boys, excelled; girls were more likely than the boys, to have acquired a more positive attitude towards conflict situations, and greater confidence in their social problem solving skills, because they were

(potentially) more motivated to learn the various problem solving steps and strategies.

The finding that girls did not view Calming Down as a necessary option, is confusing, but such reactions may also stem from their readiness to not behave in a provocative manner: instead every effort is made to diffuse the situation before it escalates into an argument. Caution, however, in interpretation is warranted as no queries about student motivation were made.

A more likely explanation for these gender differences concerns what Miller (1987) called "Reactivity" (or social desirability); where subjects behave differently than they normally would, because they are being assessed, and "Demand Characteristics", where subjects have deciphered the intent of the assessment. Miller (1987) suggested that these two factors come into play in any experiment and can diminish the interpretability of one's results. That these two issues have threatened the validity of the present studies results is not unfathomable. Student feedback during the data collection, leads the present researcher to believe, that at least for the between groups results, this is the most likely explanation for why these results were produced. For instance, students have exclaimed that they not only knew what the intent of the study was (ie. evaluation of students' problem solving skills), but that some had deliberately chosen to respond in the most negative and aggressive manner, whenever the questionnaires allowed for these type of responses. Although deletion of these questionnaires was considered, it was decided to keep them for the analysis because more than half the sample of students (male students in particular) would have had to be eliminated; analysis would not have been possible. Thus, the possibility exists that the results are not truly representative of gender

differences as two threats (reactivity and demand characteristics) to the validity of these results have been expounded.

In summary, these findings indicate that implementing the program for more than one year does not change students' tendencies to respond to conflict in a passive manner, nor does it seem to improve students' self-perceptions of their own social skills and interpersonal relationships. Furthermore, the likelihood that children will learn more problem solving knowledge because of the implementation of a special curriculum has not been confirmed. Nevertheless, gender differences revealed that, overall, girls, possibly in an effort to maintain interpersonal harmony, may be more motivated to acquire social problem solving knowledge so that they may resolve their interpersonal conflicts in an effective and assertive manner. Acquiring such knowledge and skills may have then lead to more positive self-perceptions concerning their (ie. girl) social skills and interpersonal relationships. What remains to be seen is whether these results are a true representation of program exposure or a simple artifact of gender - related socialization processes.

Repeated Measures: Assertive Behaviour, Attitudes towards Conflict A third hypothesis related to the first purpose of the present study, concerns the longitudinal impact the Conflict- Management curriculum had on the students. Recall that Elias and Weissberg (1989) postulated that there is a need for continuous skill reinforcement either through the implementation of booster activities or through the reintroduction of the entire curriculum the following year (Bartistich et al, 1989). As stated above, the Conflict-Management program was entering its' second year of implementation. Thus, this provided the present researcher with the opportunity to examine the impact of a second

year of program curriculum dissemination (a limitation not often addressed in the extant literature). Specifically, a second objective of the present study, attempted to determine whether the continued reinforcement of the program material, aided the students either by improving or maintaining their current Social Problem Solving skills ability. It was hypothesized that differences in students' Social Problem Solving skills ability would arise after having received the intervention for the second time. Two self-report questionnaires were utilized to test these hypotheses. One questionnaire measured the student's likelihood to respond to conflicts in an assertive manner (CABS). Another questionnaire measured the students attitudes towards conflicts, skills and their use, self-esteem, and interpersonal relations (SAAC). Furthermore, a repeated measures design where students were tested at three different points in time (pre-intervention, six months after the first intervention, and six months after the second intervention) was utilized for analysis. It must be noted that for this analysis, only those students who had received the program for two consecutive years were utilized. Instead of program, school became an independent variable (ie. both schools received the program for two consecutive years).

Longitudinally, no evidence was found, suggesting, that the continued reinforcement of skills (ie. implementing the program for two consecutive years) actually improved or maintained students' cognitive problem solving ability. In fact, some of the results imply the opposite: cognitive problem solving ability declined with the second implementation. These results, therefore, do not support what other investigators have found (Battistich, Elais, & Branden-Muller, 1991; Battistich, Solomon, Solomon. & Delucchi, 1990; Battistich, Solomon, Watson, & Schaps, 1989; Coleman, et al. 1983).

Elias & Clabby, 1989; Elias, Gara, & Ubriaco, 1985; Elias & Weissberg, 1989; Gesten, Rains, Rapkin, et al., 1982; Gesten & Weissberg, 1986; Solomon, Battistich, Delucchi, & Solomon, 1989; Weissberg & Allen, 1986; Weissberg & Caplan, 1988; Weissberg, Caplan, & Harwood, 1991; Weissberg, Gesten, Carnike, et al., 1989). For some of the present study's students, the second implementation produced means that were better than those obtained after the first implementation, but none of the obtained means were better than those obtained at pre-test.

The CABS total and Aggressive factor scores revealed that the students attending school 1 were more assertive, and less aggressive, at pre-test and six months after the first intervention than those students attending school 2 (who were more aggressive and less assertive). However, means obtained after the second intervention suggested that by this time, the students attending school 2 had become more assertive (and less aggressive). School 1 students' level of assertiveness had declined with the passage of time; means obtained six months after the first intervention and six months after the second intervention were much lower than those obtained at pre-test. Thus, by the time they had received the second intervention, students in school 1 had become more aggressive. School 2 students' level of assertiveness, on the other hand, had become more assertive after the second intervention in comparison to their scores obtained at pre-test and six months after the second intervention. The students attending school 2, therefore, had become less aggressive.

Student scores on the SAAC were found to be significantly affected by the school they were attending and the time at which their responses were generated. Group means

obtained at the three different points in time suggested that students attending school 2 had a more positive attitude towards conflict at all three points in time, relative to the students attending school 1. Furthermore, pre-test scores indicated that school 1 and school 2 students had developed a more positive attitude towards conflict, before receiving the intervention than after having received either the first or second intervention.

Student scores on the SAAC factors were significantly affected by the time at which their responses were generated. Group means point out that all students were a) more committed to their school environment; b) perceived themselves as having better conflict resolution skills; c) perceived themselves as having a better grasp of the underlying social skills necessary for smooth social interactions; and d) perceived themselves as having better interpersonal relationships at pre-test when compared to their scores, six months after the first intervention and six months after the second intervention. Also evident were the small changes in attitudes and perceptions. For instance, after the first intervention, scores dropped indicating a decline in the attitudes and perceptions obtained before the intervention was implemented. That is, students no longer held such positive beliefs concerning their attachment to the school environment, their conflict resolution skills, their grasp of such skills, and their perceptions of interpersonal relationships. Increases in scores, after the second intervention, indicated that the students maintained their less positive attitudes towards their school attachment and they perceived their social skills ability even more negatively. Interestingly, despite the diminished confidence in their conflict resolution skills, after the second intervention, a slight increase in scores revealed that these students perceived themselves as having a better grasp of the

underlying social skills necessary for smooth social interactions; and thus perceived themselves as having better interpersonal relationships.

Several potential explanations for these findings exist. First, it is possible to speculate that obtained significant differences between the two distinct schools may have been caused by the fact, that the students, in their respective groupings, were not equivalent in their cognitive functioning (Astri, 1996) prior to the implementation of the first intervention (Price & Smith, 1985). That is, even before the intervention was implemented, these two groups probably had differing ideas about, and responses towards, conflicts and their resolution. Preliminary data screening performed on the pre-test scores obtained from Astri (1996), revealed no significant school or school by gender differences at pre-test for either the CABS, or the SAAC totals and factor scores⁸. Thus, the two school groups did not appear to have differing ideas about, and/or responses towards, conflicts and their resolution, prior to intervention. Therefore, it does not seem likely that the repeated measures results summarized above were due to pre-test group differences.

The fact that differences between the two schools were found to be significant implies that the program was delivered differently in the two schools. The success or failure of an intervention usually depends upon the people who deliver the program and the way in which the program is delivered to the clients (Cook & Campbell, 1979; Elias et

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Significant gender effects were found on the Aggressive CABS factor score, the Attachment / Commitment to the school environment and the Conflict Resolution / Problem Solving skills SAAC factor scores. Yet, as no significant gender effects were found for any of the repeated measures analyses, the differences are attributed to the high ratio of males to females in the gender sample.

al., 1986; Price & Smith, 1985; Weissberg & Allen, 1986; Weissberg, Caplan & Harwood, 1991; Weissberg, et al., 1989; Weissberg et al., 1991; Yeaton & Sechrest, 1981). Successful interventions demonstrated that the people who do the training are well trained and they are enthusiastic about, as well as comfortable with, the intervention material (Weissberg, Gesten, Rapkin et al., 1981). Also, the program material must be disseminated according to the pattern set out by the original program creator; all components are taught and used in the same way as stipulated in the training manual (Dehar, Casswell & Duigan, 1993; Leithwood & Montgomery, 1980; Price & Smith, 1985; Scheirer & Rezmovic, 1983; Weissberg & Allen, 1986; Yeaton & Sechrest, 1981). Personal communications with the teachers, teacher responses on the Implementation / Utilization Questionnaire and direct (impromptu) observations during data collection led the present researcher to the conclusion that all three issues, pertaining to the delivery of the program curriculum, produced the above summarized results.

For instance, personal communications between the teachers and the researcher during data collection revealed, that at school 1, both reported that they did not implement the program as perscribed. One teacher was not trained in the delivery of the problem solving curriculum at the time of study and she stated that she was uncomfortable with the curriculum. Despite the limited training and discomfort this teacher still attempted to teach her students the lessons. The second teacher at school 1, told the present investigator, that he liked the curriculum but did not think that the program was appropriate for this particular age group (ie. grade five and six students). Instead, he believed that the program would have more of an impact on younger students. Also, this

teacher suggested that this age group would be better able to grasp the material if it was incorporated into the regular classroom reading and literature sessions; the conflicts and problems encountered in this literature were more closely related to the students' lives (Battstich, Elias, & Branden-Mueller, 1991; Battistich, et al., 1989; Battistich et al., 1990; Weissberg, Caplan, & Sivo, 1989). Personal communiques with the teachers in school two indicated that they had been trained in the curriculum, that they thought the program was somewhat helpful and that they had attempted to teach the curriculum as perscribed.

Teacher reports on the Implementation/Utilization questionnaire also supported the assertion that the program's implementation differed across the school settings. One Teacher at school two reported that lesson reviews, "booster" activities (ie. reinforcement sheets), and role play activities were used to teach the students the problem solving concepts in the curriculum. The other teacher, who responded to the questionnaire, revealed that they had reviewed some lessons, used Role play activities and that their classroom and problem solving corners displayed the curriculum posters. Unfortunately, teachers in school 1 did not complete the questionnaire, so any information concerning program component usage was not obtained.

Further support for the assumption, that delivery of program material differed across the two school settings, arose from direct (impromptu) observations during data collection. These observations revealed that curriculum posters and problem solving corner materials were not openly available to students. Some students had never seen the posters (ie. one classroom in school 1), whereas in other cases, the students had viewed the posters and knew where they located, even though they were not openly displayed on

the classroom walls (ie. school 2 classrooms). Given these three sources of information concerning program dissemination, it is not surprising that the students attending school 1 produced poorer results than those obtained from students attending school 2.

In summary, the implementation of the program material for two consecutive years did not help students maintain their social problem solving abilities, nor were their skills improved over the course of time. Instead, the opposite process occurred; after the second intervention, students reported, being less assertive and developing a more negative attitude towards conflict, skills and their uses, and their interpersonal relationships, then was reported at pre-test. Thus, the suppositions of Elias & Weissberg (1989), among others, were not supported. However, differences in program implementation by the teachers at the various schools, force this conclusion to be interpreted with caution. Future research attempts, should make the documentation of implementation fidelity a priority, if knowledge concerning the true impact of such programs is desired. Specifically, attempts should focus on documenting the teachers' level of training and their attitudes towards the program material. Also, unscheduled, classroom observations, should be undertaken, as such attempts in the past have proven to produce the most reliable evidence of program fidelity (Battistich, et al., 1989; Solomon, et al., 1988).

Student Behavioral Simulations: Students' Actual Skill Application

The

present study's second purpose concerned itself with determining whether or not students trained in Social Problem Solving applied these learned skills to their real-life conflicts. The extant research stipulates that the lack of generalization effects may be attributed to

the fact that many investigations have either used a) unreliable measures (ie. hypothetical role plays; Van Hasselt et al, 1981) or b) they have targeted the wrong type of information (ie. number of alternative solutions) through the use of behavioral simulations. In an attempt to overcome this limitation, the present study, attempted to determine students' actual Social Problem Solving skills application, through the use of two structured, potentially conflict-laden, behavioral simulations (see method section for a description of simulations). Some authors (e.g. Krasnor & Rubin, 1984; Vitaro & Pelletier, 1991) have suggested that behavioral simulations may be one of the most useful methods for relating what a child says he will do and what that child actually does. Accordingly, it was hypothesized that the students who had been exposed to the Conflict-Management curriculum would apply these learned skills in the simulated behavioral tasks. Related to this, a fifth hypothesis stipulated that the use of these skills by program recipients, as demonstrated in the simulations, would be superior to the skills of students not exposed to the program curriculum.

Evidence concerning students' actual skill application, suggested that for the most part, students were not utilizing the curriculum taught skills to resolve their interpersonal conflicts. A perusal of the frequency of obtained behaviours and the Logit analysis results, across the three groups indicated that some of the behaviours taught by the curriculum were displayed by the students; most of the behaviours did not occur at all. For instance, while the majority of students were observed identifying the problem, and expressing their feelings, the majority of the sample were not observed Brainstorming, suggesting Compromise, and/or Helping each other. In fact, some behaviours simply did

not occur; Calming Down, "I Talk", and Distraction were eliminated from the analysis altogether as no evidence concerning their occurrence was found. Of those behaviours that were analyzed, the examination was restricted, for the most part, to those behaviours obtained for the first simulation (Mis-information -Task interference) because variability between the groups in the frequency of observed behaviours for the Limited resource task was very small; the majority of subjects either engaged in the behaviour or they did not. The most interesting finding concerning the frequency of displayed behaviours, concerns the almost non-existence of aggressive behaviours across the two different behavioral simulations.

Furthermore, when compared to the no Comparison group, program students did not demonstrate superior skills. That is, program students did not utilize the curriculum skills more often than no treatment comparison students. Results indicated that for the most part, when variability in observed behaviours was due to program treatment level, Comparison students' skills were either at par with, or superior to, program students' skills. For example, while the majority of all students were observed identifying the problem in the first simulation, it was the first year students who were the most likely to do so, the Comparison students were next, followed by the second year implementation students, who were the least likely to identify the problem. These results suggest, that participating students do not have any problems identifying conflicts when they occur.

Furthermore, the students' willingness to use Helping/Sharing behaviour as a potential solution revealed, that out of all three groups, the Comparison students were more likely to help other resolve the problem, when compared to the two program groups

These results are surprising and difficult to interpret. It must be noted that in comparison to the other behavioral variables, Inter-rater reliability between two observers (one of whom was blind to the experimental conditions) for this category was extremely low; much smaller than the universally accepted .70 Kappa co-efficient. Therefore, these results may have occurred due to the poor operational definition provided for this category. Discussions with the "blind" rater indicated that the definition of this category was often confused with the operational definitions provided for such behavioral categories as Taking Turns and Behavioral Compromise (a category that was not analyzed in the results).

Significant gender differences occurred when the Brainstorming variable was analyzed. Contrary to expectation, the boys in the present sample, were the students who were more likely to generate several alternative solutions in their attempt to resolve the problem in the first simulation. This particular finding is quite interesting in and of itself, especially since most would assume that the girls would be more likely to brainstorm, given their greater propensity to have acquired the problem solving skills cognitively, as indicated by their means on the Specific Knowledge questionnaire described earlier. Also, as stated above, the literature suggests that girls, relative to boys, are more likely to engage in behaviours that maintain interpersonal harmony (eg. Crick & Grotpeter, 1995; Miller, Danaher, & Forbes, 1986). Thus, it is possible to speculate that the girls, in their interest to diffuse the noxious situation would have been the ones who were more likely to generate several potential solutions to the problems. This however, does not seem to be the case. and these gender differences do not seem to support above mentioned assertions.

It is, however, possible that these assertions were supported if we consider that the boys may be generating alternative solutions as a means of exerting their influence over one another (ie, trying to become the dominant player). If they then come up with a solution that appeases both players, then they have achieved their goal, "won" the game, so to speak. If this is indeed happening, then one would assume that in their effort to become the problem solver, the boys are generating solutions that are aggressive in nature. Support for this assertion was found, in a study conducted by Chung and Asher (1996), where, significant gender differences, revealed that "boys selected significantly more controlling and hostile/coercive strategies than did girls" (p. 138). However, given the virtual absence of observed aggressive behaviours, this explanation seems unlikely. Furthermore, as this study did not keep a record of the quantity (eg. Spivack & Shure, 1974; Weissberg, et al, 1991) or quality (eg. Weissberg, Gesten, Rapkin, et al., 1981) of generated solutions, it is not possible to prove or disprove this speculated inference.

Whether or not students suggest compromise as a potential solution for task resolution was also explored. Results indicated that in both the Mis-information -Task interference and Limited resource tasks, students overall were not likely to use this strategy as a potential solution to these two behavioral simulations. Compromise, then, did not appear to be the students' first choice as a potential solution, even when the task at hand implicitly demanded that it is the only available solution (ie. Limited resource task). Whether or not the students have fully understood the concept of compromise as a WIN/WIN situation or if they really do not use compromise in their everyday lives, remains to be studied.

When the Expression/Recognition of Feelings behavioral category was examined results revealed that the majority of students did in fact express their personal feelings to each other, either verbally or behaviourally. These results suggested that the participating students were capable of expressing how they feel to other people, and that such expression was natural to them. However, the curriculum not only teaches children the importance of telling other people how you feel, it also teaches these children a specific sequence of expression: "I Talk"; I feel...when you...I want.... As this behaviour did not occur at all, it is impossible to say whether the curriculum actually influenced the students' openness to each other. Also, it must be noted that for the most part, this behavioral category consisted of Smiling and Laughing behaviour, indicating that rather than being frustrated by the problem in the Mis-information scene- task interference simulation, the children were treating the simulation as a fun game.

Clearly, given these results, it can only be concluded that overall, neither of the two hypothesis regarding students' application of problem solving skills were supported by the available data. In some respects it can be assumed that, regardless of whether a specific curriculum is implemented or not, when faced with conflict situations, the majority of students do not appear to utilize a specifically set process in their efforts to resolve their conflicts (at least as attested by the present study). The fact the Comparison students appear to utilize (or not utilize) the same problem solving skills as those displayed (or not displayed) by the two program groups may indicate that these students as a whole, already possess some element of problem solving ability, and that the program itself is being disseminated to the wrong population (Coleman, Wheeler, & Webber, 1993; Urbain

& Kendall, 1980).

Given that for the behavioral observations only Post-test data was collected, speculation of this kind cannot be supported. Tisdale and St. Laurence (1986) in their review of social problem solving interventions, postulate that the lack of baseline data makes it difficult to substantiate any inferences made concerning data of this kind. In future, the collection of behavioral pre/post data may better determine the impact of social problem solving programs on students actual use of these skills.

Nonetheless, several alternative explanations can be espoused for these particular findings. The similarities in observed behaviours (ie. they either display the behaviour or they don't, across the board) amongst all groups may stem from extraneous effects and flaws in experimental design. In terms of extraneous influences, the virtual absence of aggressive behaviours suggests, that students may have been informed of, or anticipated the purpose of the scenarios. For instance, all the students were aware that their behaviour was being video-taped. This kind of awareness alone had the potential of influencing the students in such a manner, that they assumed socially desirable behaviour patterns.

Related to this issue, is the fact that many students, particularly in the comparison school, when queried as to the nature of the "games" they were about to play, had informed the experimenter that they knew they were being assessed for their social problem solving skills (or conflict resolution skills). The students explained that this information was obtained from both teachers and parents. Furthermore, although every effort was made to ensure that the students did not inform the other subjects of the nature

of the games (ie. "lets keep these games a surprise for everyone else" or "Maybe the others will play these same games or maybe I have other games for them, you never know"), inter-subject conversations (Gesten, Rains, Rapkin, et al., 1982) during recess, lunch, and after school may have occurred, and the nature of the "games" may have been disclosed.

Despite, student reports indicating that they had learned the intent of the assessment from the significant others in their lives (ie. parents, teachers, and classmates), it is more likely that this information was inadvertently disseminated by the experimenter herself during the assessment process. Torgrud and Holborn (1992) suggest that the instructions given to students may inform subjects of a) the specific behavioral criteria being assessed or b) the explicit focus of the assessment. Although, in their review they concentrated on the methodological flaws in the use of "Role play" scenarios, their arguments could be extended to include the present study's use of behavioral simulations.

Design limitations, may stem from the possibility that the two specifically constructed behavioral simulations lacked problematic salience (ie. the students did not perceive these simulations as being particularly problematic), realistic application (ie. the students do not encounter such situations in their day to day lives), and naturalness (ie. the setting of the simulations was somewhat artificial) (Sommer & Sommer, 1991; Torgrud & Holborn 1992). First, student comments such as "she asked us to do it this way". suggests that the students were not as concerned with the encountered problems. as they were with pleasing the experimenter (ie. lets just do it the way she told us to"). Not only does this imply that the students were behaving according to the "demands" of the

situation (and/or experimenter's wishes), but these assertions also imply that "the subjects' concerns about the potential consequences of their behaviour" (Torgrud & Holborn, 1992, p. 254) in the simulations, were reduced, enabling them to react to the simulations as if they were truly "games" and not natural everyday problems. Some support for this idea can be found in the present study's findings that for the most part, students' expressions of feelings, consisted mainly of smiling and laughing behaviours, demonstrating that they were having fun and that they were not very concerned with the problems inherent in the presented tasks.

It can, therefore, be argued, that the simulations themselves may have been unrealistic and thus not very salient to the students, because they did not truly represent real-life conflicts encountered most often by children (Harris, 1985; Lochman & Lampron, 1986; Tisdale & St. Laurence, 1986).

When the two simulations were designed, they were based on the theoretical assumption that certain situations provoke conflicts between two (or more) individuals more often than other situations (Dodge, McClasky, & Freeman, 1985; Vitaro & Pelletier, 1991). According to the literature then, the two most conflictual situations for children were thought to be a) Task interference: someone disrupts or destroys a current work in progress, and b) Limited resource tasks: where two (or more) children compete for the available resources in order to complete a required task (Dodge et al. 1985). However, as these two tasks were reported by Dodge et al, (1985) and Vitaro & Pelletier, (1992) to be the most problematic for extremely mal-adjusted and/or "high-risk" children, the simulations, (based as they were on Dodge et al. 1985) in the present study, may not

have been appropriate to "normal" children. Thus, if the simulations were more representative of the type of conflicts affecting "normal" children, observed behaviours may have been different and some actual problem solving skill application would have been discernable.

Finally, the obtained results could be misleading in themselves, because the of the nature of the program itself. The use of behavioral techniques to measure actual skill applications rests on the assumption that the students translate the cognitive elements of the curriculum into behavioral processes. Since the program is cognitively based and subsequently reinforced through hypothetical, and thus cognitive, role-play scenarios; the role play itself suffers from the same limitations mentioned above (salience, realism, and naturalness). This illustrates the primacy of the programs' cognitive nature. The behavioral simulation techniques designed herein, were constructed in the hope of producing observable behavioral actions, and thus can not measure the meta-cognitive appreciations gained by the students (Babbie, 1989). Meta-cognitive thought processes may best be addressed in specifically constructed interviews, as was done in Astri, (1996). Through a Pre- Post- test structured interview, where students were asked to describe a conflict they had experienced over the recess period, Astri (1996) found that although not significant, most students, regardless of program, were able to identify their own personal feelings and were capable of resolving their conflicts on their own. When analyses were conducted on brainstorming ability, she found that program students, relative to comparison students, who had been unable to generate alternatives before intervention, were capable of generating alternative solutions six months after the intervention. Given

her results, the possibility exists that having students talk about a recently encountered conflict episode, may trigger their meta-cognitive representations of problem solving more readily than structured behavioral simulations. Unfortunately, information concerning the whole problem solving process, particularly the social problem solving steps taught by the curriculum, were not ascertained through this interview format. For an interview to really tap students' meta - cognitive skills, it would have to be constructed in such a way that the students' understanding of the whole Social Problem Solving process could be assessed. This would entail the adoption of the stages implicit in Social Learning theory often espoused by Rubin & Krasnor (1986), Ladd & Mize (1983), and / or Dodge (1986) among others.

In summary, the present study's attempt to observe students' actual skill application reveals that, for the most part, students who had received the curriculum did not use the social problem solving skills, more often than the no treatment comparison students, in their attempts to rectify the problems (in the behavioral simulations) . Furthermore, students receiving the program for two consecutive years, did not display a greater frequency of curriculum taught social problem solving skills, when compared to first year implementation students' social problem solving behaviours. Student awareness of the projects' goal, the video camera, and the fact the simulations lacked problematic salience and realism quantify these observations. Furthermore, meta-cognitive representations of learned social problem solving process have proven to be difficult to observe, via behavioral simulations of this kind. Future research would best be served, if goal awareness was controlled for. Also, the integration of an interview schemata combined

with the behavioral simulations would potentially draw on both students' skill application and meta-cognitive representation of the processes utilized in the observation package.

In general, when all the results of this study are aggregated, the present study's findings do not provide support for any of the present study's hypotheses. First, students receiving the program curriculum did not demonstrate superior cognitive problem solving ability, relative to a no treatment control group, when responses on three different self-report questionnaires were perused. Questionnaire data demonstrated that the three groups responded in a similar fashion, suggesting that the program and comparison students shared comparable knowledge of, and attitudes towards, conflict and its' resolution. Second, when the two program groups were compared to each other, results revealed that the differences between the two program groups were sparse; suggesting that a second implementation of the program does not increase students' skill level. Third, longitudinally, no evidence was found, suggesting, that the continued reinforcement of skills (ie. implementing the program for two consecutive years) actually improved or maintained students' cognitive problem solving ability. In fact, some of the results implied the opposite; cognitive problem solving ability declined with the second implementation. Fourth, evidence concerning students' actual skill application, suggested that for the most part, students were not utilizing the curriculum taught skills to resolve their interpersonal conflicts. Finally, when compared to the no treatment comparison group, program students did not demonstrate superior skills. That is, program students did not utilize the curriculum skills more often than no treatment comparison students.

Such findings are, of course, contrary to what one might expect, given the extant

literature's allusions that these types of cognitive-behavioral programs, do produce changes in students abilities; cognitively (Alvarez, Cottler, & Jason, 1982; Coleman, Wheeler, & Weber, 1993; Elardo & Caldwell, 1979; Elias, 1986; Hightower, Pedro-Carrol, & Work, 1990; Olexa & Forman, 1984; Shure, 1979; Spivack, Platt, & Shure, 1976; Spivack & Shure, 1974; 1982; Urbain & Kendall, 1980; Weissberg, Caplan, & Sivo, 1989; Weissberg, Gesten, Carnike et al., 1981; Yu, Harris, Solovitz, & Franklin, 1986) and behaviorally (Gesten, Rains, Rapkin et al., 1982; Weissberg, Gesten, Carnike. et al., 1981; Weissberg, Caplan, & Sivo, 1989; Weissberg, Gesten, Carnike, Toro, et al., 1981; Weissberg, Gesten, Rapkin et al., 1981).

Given that none of the hypothesis were supported, the conclusion that the program did not successfully produce changes in students' cognitive and behavioral problem solving abilities and skills, is strongly supported. As stipulated earlier, program delivery differed across the school settings, making it extremely difficult to make inferences about the real impact this program has had on students' ability. Also, the possibility exists that the data represent a "ceiling" effect, in that the program was delivered to a population that already had a high level of problem solving ability, making further improvements in skills extremely difficult. Furthermore, the program's short duration (ie. six weeks) and the lack of "booster" activities following program implementation, may have not provided the students with sufficient opportunities and / or time to assimilate these skills into their cognitive and behavioral repertoires (Gesten & Weissberg, 1986). Moreover, the lack of variability in the frequency of observed (and non observed) behaviours in the behavioral simulations indicate that the cognitive nature of the program does not easily translate into

acquired behavioral skills.

Limitations to the present study

However, such a conclusion can be tempered, if one takes into consideration the various limitations encountered during the course of the investigation. For instance, the present program's unsuccessful attempts to produce change in the students' problem solving ability, can be attributed to any of the number of previously stated explanations. The students were aware of the study's goals; thus, presumably, their behaviour (on the questionnaires and in the simulations) was not characteristic of their everyday encounters.

The unrealistic and unnatural structured behavioral simulations also makes inferences about students' skill application difficult. Finally, other methodological issues, such as design and statistical issues, the appropriateness of the measures used, and the appropriateness of using teachers as raters, may also have reduced the interpretability of the results. This next section expands the discussion of these issues and attempts to explain how these limitations have impacted upon the entire research project.

Methodological Issues

Measures The present study measured changes in childrens' problem solving ability through the use of self-report questionnaires. Behavioral simulations were used to measure childrens' actual skill application. Overall, Gresham (1985), among others (eg Lahey and Strauss, 1982) would argue, that, the programs' merit has not truly been measured, as these types of measures, for the most part, do not reflect the social outcomes heavily valued by society. Gresham (1985) has posited that, for social problem solving treatments to be successful, they must make a difference in children's lives (ie. it must be

socially meaningful). In his review, Gresham (1985), (see also, Lahey & Strauss, 1982) classified various outcome measures according to "the extent to which they reflect socially important outcomes" (p. 417). According to him, then, self-report inventories and behavioral observations through simulated situations, are not valid in themselves, because they do not measure socially valued treatment objectives (ie. reduction in student aggression, increased academic achievement). Information of this type is generally obtained from archival data (reductions in visits to the principals as a results of a decrease in aggressive behaviour), teacher reported changes in behaviour (students resolve conflicts without teacher intervention) and sociometric indices (peer status has changed as a result of the treatment) (Gresham, 1985; Lahey & Strauss, 1982; Ogilvy, 1992). The lack of such data acquisition may have hampered the results of this study, yet, as school logistics and time constraints (Astri, 1996) prohibited the present investigator from gathering archival data or sociometric reports, it is difficult to speculate how the results would have been improved, if such data had been gathered. Furthermore, as the present study did employ teacher judgements of student behaviour, clear cut denial of the evaluation's validity is unwarranted.

The lack of psychometrically sound measures, also plays an important role in the determination of program impact. Cook and Campbell (1979) assert that "low reliability measures cannot be depended upon to register true changes" (p. 43), as unreliability tends to inflate the standard errors of estimates, which play a crucial role in inferring differences between means. Only two of the various measures used, have been found to have adequate reliability and validity (ie. the CABS and SAAC, see method section for a

description). The other measures (ie. The Specific Knowledge Questionnaire, the Self-Management scale of the School Social Behaviour Scale, and the behavioral simulations) all lack data to support the reliability and validity of these indices, as appropriate outcome measures. It must be noted that the present study is not alone in this area. Reviews of the literature (Urbain & Kendall, 1985; Coleman, Wheeler, & Webber, 1993; Ogilvy, 1992; Tisdale & St. Laurence, 1991) have stipulated, that almost all investigations of this nature (e.g. Elardo & Caldwell, 1977; Spivack & Shure, 1974; Weissberg, Gesten, Carnike, et al., 1981) have judged programs as being effective, based on results gathered through psychometrically unsound outcome measures (Gresham, 1985; Lahey & Strauss, 1982). Often, these difficulties arise because a) reliable outcome measures do not exist, so the authors take it upon themselves to construct new measures (Weissberg, Gesten, Carnike, et al., 1981) b) measures have been modified to "fit" the targeted population (Weissberg, Gesten, Carnike, et al., 1981), c) the measures have been used to code for only one specific set of behaviours (ie. the number of alternative solutions generated after treatment), or d) the measures, being unrelated to the interventions' content, are not sensitive enough to measure changes (Hughes & Sullivan, 1988; Price & Smith, 1985).

The present author attests to the difficulty of finding appropriate psychometrically sound measures. A review of the literature indicated that the most often used measures were originally designed for a preschool population, by Spivack and Shure (1974). Subsequent investigations adapted and modified these measures for older groups of children (Tisdale & St. Lawrence, 1986). Furthermore, although, behavioral simulations were used as a generalization index, in the past (eg, Weissberg et al., 1989), none

measured actual skill application and all the simulations used an adult or peer confederate to instigate the targeted behaviours. While attempts at mitigating these limitations, were made in present study, the difficulty in finding valid measures proved difficult. Also, time constraints reduced the authors' ability to develop sound measurement devices. For instance, criterion validity of the behavioral simulations may have been established had the evaluation also used hypothetical Role Play vignettes, depicting similar problem scenarios. However, this was not possible due to the already lengthy data collection process (ie. one week per school); removing the children from their classroom lessons for a longer time period, may have proven to be academically unhealthy.

Psychometric properties aside, the lack of significant findings may have occurred because the measures were insensitive to change either because changes in ability were not possible or because the measures were unrelated to the curriculum's content (Price & Smith, 1985; Tisdale & St. Laurence, 1986) and / or the students real life experiences (Harris, 1985; Lochman & Lampron, 1986; Sommer & Sommer, 1991; Tisdale & St. Laurence, 1986; Wiessberg et al., 1989). First, high pre-test scores make it unlikely that post-test scores will reflect change; indicating that the questionnaires were insensitive to change, due to the possibility that the students already possessed a high level of skill, before the implementation of the program. These data were evidenced in the repeated measures analysis described previously. Second, Hughes and Sullivan (1988) and Price & Smith (1985) contend that positive findings concerning the impact of a social problem solving program are unlikely to occur, if the outcome measures are unrelated to the treatment's material. For the most part, the measures utilized in the present findings were

not related to the curriculum, per se. Instead the questionnaires (both student and teacher questionnaires) attempted to measure behaviours assumed to be impacted by the program curriculum (ie. assertive behaviours and attitudes towards conflict, skills, and interpersonal relationships, and self-management behaviours). That is, it was assumed that generalization across behaviours would have occurred even if those behaviours were not specifically targeted through the curriculum (Hughes & Sullivan, Gresham,). As seen in the between groups analysis (for students and teachers), such generalization did not occur, although teacher reports did produce some evidence suggesting that program students had displayed more self-management and less hostile-irritable behaviours. Such findings attest to the suggestions made by Dodge, Petit, McClasky, and Brown (1986) and Caplan, Weissberg, Groeber, et al., (1992), that along with a generic problem solving process, interventions should teach and / or relate this generic process to those specific behaviours needing change; generic processes alone will not transfer to other behaviours. Whether the current program can incorporate more domain specific elements remains a matter for future evaluations.

It must be noted that an attempt to design a questionnaire according to the curriculum material was made and that these efforts resulted in The Specific Knowledge Questionnaire. Interestingly, no program effects were found; potentially supporting the "Children Learning for Living" Research committee's apprehension about the questionnaires' face validity. Some members of the committee felt that the items did not truly represent the curriculum's scope. Also, according to these same members, some items had two potentially valid answers as both behaviours were encouraged. The

questionnaire was utilized despite these criticisms because a) there was a need for such a measure and b) the present researcher and her supervisor felt, that those questions with two potentially correct answers, would tap the students' understanding of the "best" (or superior as opposed to inferior) solution for that particular scenario. An example taken from the behavioral simulations will help clarify this idea. In the Limited Resource task, missing "LEGO" pieces made it difficult for the students to build the astronaut by themselves. Many solutions could have been utilized: Helping, Trial and Error, grabbing the needed piece. However, none of these solutions was the "best" solution either because the astronaut was not completed (ie. helping usually meant sharing of information) or the action was not prosocial in nature (ie. just grabbing other subject's piece) In this scenario, the "best" solution was Compromise; a completed astronaut could have been built if both students had worked together and shared their pieces. Qualitatively, choosing this solution would have demonstrated that the students had developed an understanding of which solutions were of a superior quality (ie. the "best" solution) and of an inferior quality (ie. Trial and Error) for that particular situation. Such judgements, however, are extremely subjective in nature and thus were not performed in the present study. Yet, future research endeavors may be better served if the qualitative nature of student responses are analyzed. Weissberg et al. (1989) found that their urban sample generated a multitude of aggressive solutions; an artifact of the study that was not expected. They and others (Coleman, Wheeler, & Webber, 1993; Tisdale & St. Lawrence, 1986; Weissberg, Gesten, Rapkin, et al., 1981), therefore, have suggested that the quality of alternative responses should also be evaluated, as information concerning the number of generated

solutions is worthless, if those solutions are of an anti-social nature.

Third, a review of the literature suggests that positive program impact findings are unlikely, if the measures used, do not represent real-life experiences (Harris, 1985; Lochman & Lampron, 1986; Dodge, McClasky, & Freeman, 1985; Vitaro & Pelletier, 1991). Both the CABS questionnaire and the behavioral simulations suffer from a lack of realistic salience and natural application. For instance, as stated in the Between groups section on the students' questionnaire responses, the CABS was not representative of a form of aggression often utilized by female subjects (ie. relational aggression). Gender differences in aggression may not have been forthcoming if these more subtle forms of aggression had been assessed. Similarly, it was previously theorized that the behavioral simulations may not have been truly representative of the types of conflicts encountered in the classroom or school yard. As already stated, the scenarios were built upon previous research done by Dodge, McClasky, & Freeman, (1985; see also Vitaro & Pelletier, 1991), who found that Task interruption and limited resource tasks were the most troublesome for the youth in their study. However, as these results were obtained from a maladapted population, it is quite possible that these two tasks were not the most problematic for well adjusted children. Nevertheless, it is suggested that future research attempt to determine which conflicts are the most problematic for children in their natural environment. Once this has been achieved, the design and utilization of contrived simulations should become an easier task. To date, Dodge, et al. (1985) are the only researchers who have attempted such a systematic investigation with children. although D'Zurilla and Nezu (1982), have done so with an adult population.

Instrumentation (Cook & Campbell, 1979) (changes in assessment instructions and/or assessment procedure) also played a part in the speculation that the simulations lacked problematic salience. When the simulations were pilot tested, they proved to be viable problem situations. However, when the simulations were actually employed in the field setting, impromptu observations indicated that there was no recognition, on the part of the students, that these situations were anything else but games. Discussions with the present author's supervisor lead to the conclusions that the "games", in their present state, were not motivating enough; the scenarios did not instill competitiveness among the subjects. Thus, in subsequent schools, the instructions and nature of the games were restructured so as to make them more competitive. Students were informed that they were to receive points towards a prize if they completed the tasks as asked. Thus, it is quite possible that this change in instrumentation, during behavioral data collection, could have impeded the results. However, this seems unlikely, as observations of student behaviours at the first settings and at subsequent settings, indicated that the competitive nature of the new instructions did not make the "games" appear more problematic to the students. In future, changes in instrumentation during data collection should be avoided as such changes can make interpretations and conclusions extremely difficult.

Finally, some authors (Foster & Ritchy, 1979; Maag, 1989) contend that it is the coding system used and not the measures, per se, that reduce an evaluations' viability. Difficulty in operationally defining the behaviours to be observed is attested to by the present research. Three trials of coding had to be conducted before inter-rater reliability coefficients greater than .60 were achieved. Each time coding was attempted, a revision

of the coding system was required. Finally, after the third attempt, a new coding scheme containing only those items specifically related to the curriculum was retained. Even so, the helping behavioral category received the smallest Kappa coefficient (see Table 3 in the method section). Discussions with the "blind" rater, indicated that, even after three attempts, this behavioral category was often confused with Taking Turns, another observable behaviour (see Appendix for operational definitions). In future, observational coding systems should strive for clearer, mutually exclusive operational definitions so that these problems can be avoided.

Extraneous Influences

When the discussion was concentrating on the results obtained in the behavioral simulations, a hypothesis was forwarded, stating that the present study's results could have occurred due to a failure to control for extraneous variables. Specifically, it is the present authors' contention, that the simulations were not problematic for the children, because they had realized the study's goal. Also, reminders from parents, teachers, inter-subject communication, and, inadvertently, the present researchers' simulation instructions (Torigrud and Holborn, 1992) all had the combined effect of making the research intentions highly salient. At this point in the discussion, the author wishes to make clear that this explanation can and should be extended to include the results obtained for the student questionnaires. Ethically, the students, parents, and teachers had to know that the behavioral simulations were being video-taped.

Furthermore, as deception was not part of the present study, the consent form fully disclosed the elements that were being assessed. Therefore, the fact that the students were fully aware of the projects' intentions, from the beginning, may have skewed the results

Such knowledge (ie. demand characteristics), in turn, caused some of the students to behave in a socially desirable manner (ie. lack of aggressive behaviour during the simulations), whereas others behaved in a socially undesirable manner (ie. specifically responding with the most aggressive answer on the questionnaire material). However, as this information was obtained through student communiques and indices of student motivation were not utilized, this hypothesis remains to be substantiated. Future research efforts are well advised to keep this in consideration when designing evaluations of this kind.

Teachers as Raters Like many of the previous program evaluations cited (eg. Wiessberg, Gesten, Carnike, et al., 1981; Gesten, Rains, Rapkin, et al., 1982), the present study was also limited by the fact that the teachers were aware of the experimental conditions (see Tisdale & St. Lawrence, 1986 for a review). Such knowledge could have impacted on the teachers ratings, causing some teachers to rate their students too harshly (ie. the students were not observed engaging in prosocial behaviours) or too liberally (ie. all the students were observed engaging in prosocial behaviours). Bias, therefore, at least in the present study, cannot be discounted. However, as the design and time constraints made it extremely difficult to hide the experimental conditions, the potential for bias should be considered as an artifact of the design, rather than an active (or inactive) attempt to obstruct the research.

Program Implementation Many authors have stipulated that information concerning the integrity of program implementation (e.g. Dehar, Casswell & Duigan, 1993, Leithwood & Montgomery, 1980; Price & Smith, 1985; Scheirer & Rezmovic,

1983; Yeaton & Sechrest, 1981) is crucial to the continued success and use of an intervention program. Specifically, without this type of information, some ecologically valid programs may be discarded due to the poor results obtained from outcome measures. Unfortunately, while the present research attempted to gather some information concerning the implementation of, and utilization of, various program components, school logistics and time constraints restricted the collection of this kind of data to one open-ended questionnaire, which was completed by the teachers of those students (ie. classes) who participated in the research project. Responses to the questionnaires indicated that while most of the lessons were being taught and that some of the teachers had used Role play, the majority of the components were not being utilized by either the teacher or the students (ie. problem solving corner, reinforcement sheets, "booster"activities). Given the fact that the majority of teachers reported that they or their students did not use the majority of program components, it is not surprising that the results lacked significant program effects. Furthermore, personal communiques with the teachers and impromptu observations during data collection, substantiate this assertion. However, caution in interpretation is necessitated at the present time, as a) the questionnaire lacked sound psychometric properties, b) teacher bias cannot be eliminated, and c) no other systematic investigation of program fidelity was conducted (ie. reports from teachers and other school staff, who are not involved with teaching the core curriculum material, principal reports or interviews. and / or interview with the primary mental health worker in charge of training curriculum teachers, etc.) Future research should strongly consider implementing a stricter and more systematic assessment of the fidelity of program delivery.

post hoc observations, while potentially useful for explanations concerning the lack of effects in retrospect, do not truly enable the researcher to make strong conclusions about program impact.

Design and Statistical Issues

Issues of design and statistical appropriateness often have a tremendous impact on the generation of significant results. If the design or procedure is unsound, or if the statistical analysis is questionable or inappropriate (Gresham, 1985), the interpretability of the obtained results is reduced. These issues and their impact on the current study will now be discussed.

Design The design used in the present study was called a quasi-experimental, non-equivalent groups, delayed intervention design. This was an appropriate design given that the subject groupings were based on a previous impact evaluation conducted by Astri (1996; see method section for a description). However, as random assignment to the groupings was not possible, strong causal statements are not feasible, as the results may have been produced by any number of extraneous variables unrelated to the treatment (Price & Smith, 1985;). For instance, Price and Smith (1985) contend that selection factors, such as subject characteristics (gender, SES, IQ), may bias the findings in favour of one group over the other. In the between groups analysis, gender effects on the CABS questionnaire, appeared to favour the girls over the boys, because they were less aggressive. It is possible that this particular effect is an artifact simply created by the higher number of female subjects, and not a true representation of how these genders attempt to resolve their interpersonal conflicts (Schneider and Byrne, 1985).

However, as there were only five more females than males, this explanation does not seem likely. Control over these potentially confounding factors can be somewhat achieved through a matching process where subjects are matched on a variety of factors, such as IQ, Family income etc. This process was attempted in the present study. As described in the method section, schools were matched according to province-wide test results, family income rankings, and number of English second language students per school.

Furthermore, in the repeated measures analysis, the same subjects were tested on three different occasions, further reducing variability due to subject differences, as the subjects acted as their own controls. Thus, even though the present research is limited by the quasi-experimental, non-equivalent groups design, some control over subject characteristics was achieved.

Nested design Given that the three intervention groups were non-randomly assigned (ie. the assignment to the three groups was based on schools), the possibility exists that this design should have been treated as a Nested design. Nested designs occur when one independent variable is limited to one facet of another independent variable (Kirk, 1982; Tabachnick & Fidell, 1989). In the present case, school would be nested under program because the school, in question, is either receiving the intervention or it is not. This statistical issue, reduces the researcher's likelihood of finding significance, as power is reduced because of the smaller degrees of freedom available for manipulation. In the present study, the nested design was not an issue, as preliminary screening of the questionnaire responses in the between groups analysis, revealed limited school effects (see footnote 1). Furthermore, repeated measures analysis was based on only those

students who had received the program for two consecutive years; instead of program then, school became the independent variable under investigation. Thus, the question of a nested design was eliminated, as school was treated as an independent variable. However, the potential for a nested design in the behavioral simulations was not addressed, as it was felt that this was exploratory research and that it would be more informative to gauge whether or not the students were actually applying their learned skills. Utilizing a nested design may have eliminated any chance of finding significant group differences in problem solving skill application.

Power and Effect Size The present study's obtained results revealed that the power of the statistical tests was adequate, mainly due to the large sample sizes utilized in the analyses (Stevens, 1992). Furthermore, as in previous investigations, the effect size of the effects was small to moderate (Stevens, 1992; Tabachnick & Fidell, 1989). Schneider and Byrne (1985) contend that for the most part, small to moderate effects sizes are characteristic of applied social science research. Thus, the present research provides more support for this contention.

Conclusions and Recommendations

The present study's purpose was two-fold. First, the present study attempted to document the short-and long-term impact on children's cognitive social problem solving skills and abilities. Second, the present study, also attempted to determine whether or not the students actually applied these curriculum taught skills in their efforts to resolve their interpersonal conflicts. To this end, a multi-method assessment strategy, consisting of questionnaires, teacher reports, and behavioral simulations, was employed.

Overall, the results of this study, suggest that the program, in its' present state, did not produce very much change in students' cognitive or behavioral social problem solving skills and abilities. For instance, differences in students' assertive behaviour, attitudes towards conflict, knowledge of curriculum units, and behavioral skills application, did not occur in the expected direction, when the three groups were compared to each other. Also, the hypothesis that, continued reinforcement of skills helps to maintain students' skills level, was not confirmed. Furthermore, although many of the curriculum based skills were not applied in the behavioral simulations, for those skills that were applied, results suggested that the comparison students were just as likely as program students, to identify problems, help each other during the task, and generate alternative solutions.

The most interesting findings produced by the present study, concerns the significant gender effects found on the CABS and SAAC questionnaires, and through the observation of brainstorming behaviour attained in the simulations. According to the questionnaire results, boys were more aggressive and had poorer attitudes towards conflicts, when compared to girls. However, the behavioral observations showed that it was the boys, and not the girls, who were more likely to generate several alternative solutions. Given the lack of aggressive behaviours in the simulations, these two findings are inconsistent with each other, and further investigation into such behaviour is warranted. Such findings, however, do point out that there is a need to ascertain not only the quantity of generated alternatives, but also the quality of these alternatives (eg. Weissberg, Gesten, Rapkin et al., 1981). The alternative solutions generated by the boys, may have indeed been aggressive in nature and thus, representative of their questionnaire

responses.

Several reasons were postulated in an effort to explain the obtained results. First, it was suggested that the inconsistent program delivery by classroom teachers, across the different school settings, leads the present researcher to believe that the program was not being fully implemented. This hypothesis is substantiated by the teachers responses on the Implementation / Utilization questionnaire, personal communications, and impromptu observations during data collection. Second, it was posited that the outcome measures, both the questionnaires and the behavioral simulations, were not appropriate as they were either a) socially invalid (Gresham, 1985), b) unrelated to the program material (Price & Smith, 1985; Tisdale & St. Laurence, 1986) and / or c) they were unrealistic and not problematically salient to the children's real-life experiences (Harris, 1985; Lochman & Lampron, 1986; Dodge, McClasky, & Freeman, 1985; Vitaro & Pelletier, 1991; Weissberg, et al., 1989). Third, the students' awareness of the evaluation's goals probably led them to act in either a socially desirable or undesirable manner. This assertion is supported by the male students' comments that they knew the right answers, but had decided to respond with the most aggressive answers whenever possible. Furthermore, the lack of aggressive behaviours in the simulations suggests that the students did not want to appear in a negative light on the video-tape. Fourth, the limited data on students' skill application may have occurred because the simulations were unable to detect meta-cognitive representations (ie. the students' thinking processes). Finally, the possibility exists that the program was implemented to a population that already had a high level of problem solving ability, which implies that the program would not have been able

to produce improvements in skills (Coleman, Wheeler, & Webber, 1993; Urbain & Kendall, 1980). The high pre-test scores obtained in the repeated measures section attest to this assertion. Most of the successful interventions have used populations believed to be maladjusted in some way or another (ie. economically disadvantaged, Spivack & Shure, 1974; aggressive; Lochman & Lampron, 1986).

Given the present study's failure to detect significant generalization effects across behaviours (assertive behaviours, positive attitudes) and situations (behavioral skill application in the contrived simulations) leads the present researcher to another potential explanation for the obtained results: the findings of the present study may have occurred because the program, in its present format, does not provide the students with domain specific instruction in the area of assertive behaviour. As previously stated, the social problem solving intervention under review, teaches children a (cognitive) generic thinking process. The primary mechanism through which the dissemination of the program material is achieved, consists of verbal statements (accompanied by visual posters) made by the teachers to the students. Caplan, Weissberg, Groeber, et al. (1992) have suggested that just teaching a generic process is not enough. Skills, acquired through generic processes do not automatically transfer to every social situation (and or behaviours) encountered. Instead, transfer to other situations can only be accomplished if the generic social problem solving process is related to specifically targeted situations (and / or behaviours). Caplan, Weissberg, Groeber et al., (1992) assert that "the combination of general skills training with domain-specific instruction may be the most effective way to prevent particular psychosocial problems" (p.57), and they cite several studies that have

proven successful when depression, impulsivity, and aggression were the specific targets. Furthermore, this group of researchers also provided support for this assertion, when they applied the generic social problem solving process to the area of substance abuse (see also Weissberg, Caplan & Sivo, 1989). As the current social problem solving program does not directly target assertive behaviours or student attitudes, it is not surprising that changes in these areas were not found.

Furthermore, the program may also be limiting the students' behavioral application of skills, as it does not have, as part of its instruction package, very many behavioral opportunities for practice. Although, the trainer's manual stipulates that modelling, coaching, and Hypothetical Role Plays, provide the children with practice opportunities, the possibility remains that this is not enough. Several research endeavors have combined domain specific instruction with behavioral techniques that encourage the use of skills in a variety of situations (eg. prevention of 'high- school drop out': Sarason & Sarason, 1981)

For example, the Child development Program (CDP) instituted by Battistich and colleagues (Battistich, et l., 1989; Solomon, Watson, Delucchi, Schaps, & Battistich, 1988) has incorporated within its program format, a "cooperative activities" component, where students, in small groups, are supposed to work together on a variety of academic and non-academic tasks. Through these activities, the children are encouraged to "strive for fairness, consideration, and social responsibility" (Battistich, Solomon, Watson, Solomon, & Schaps, 1989, p. 150) and are trained in relevant interaction skills. Other interventions include behavioral rehearsal, where students role play their skills and are provided with teacher feedback (Vaughn & Lancelotta, 1986; La Greca & Santogrossi,

1980; Weissberg & Gesten, 1982). Still, others incorporate, homework assignments (Caplan, Weissberg, Groeber et al., 1992; Vaughn & Lancelotta, 1986), teacher dialoguing, when students ask for help in resolving a squabble (Spivack & Shure, 1974; Weissberg & Gesten, 1982; Weissberg, Gesten, Carnike, Toro, et al., 1981), and actual operant behaviour techniques, where points are lost if any aggressive behaviours are displayed in the classroom (Olexa & Forman, 1982). As seen, there are a variety of techniques that could be used to help students acquire and practice these skills. The incorporation of these behavioral techniques with a more domain specific instruction package may provide the current problem solving program, with the right combination of elements to help students, not only learn, but to also use these skills in their everyday lives. Future research is needed to confirm this assertion.

In summary, while the present research project was not able to provide concrete evidence of the social problem solving program's positive impact on students cognitive and behavioral skill application, it must be noted that, at least behaviorally, the students did appear to utilize some of the skills thought to make up the core elements of all social problem solving programs. Whether or not these findings were, in fact, an artifact of students' awareness of the projects goals, remains to be seen. Behavioral simulations that portray more realistic conflicts may provide this much needed information. Also, gender differences point out that student motivation, at least for the girls, may play a deciding factor in whether these skills are learned and / or applied. However, as indices of student motivation were not utilized, this remains a topic for future research. Furthermore, the lack of longitudinal evidence, may suggest that the one time delivery of this program may

be enough to give these students a basic understanding of the social problem solving process. However, without more specific instruction and / or behaviorally oriented practice opportunities, this basic understanding may never develop into skill application.

Recommendations for future research endeavors have been endorsed throughout the presented discussion and thus only briefly re-iterated here. First, the present researcher strongly advocates that future investigations take note of the various challenges applied research is often confronted with. Unlike laboratory settings (or college campuses), successful field research is dependent upon the clients' trust, willingness and availability to participate. Often, fear of evaluation and the logistics of the setting make it difficult to procure much needed data (Babbie, 1989) and tends to limit the researcher to the collection of as much data as possible in the shortest amount of time necessary. Often the researcher, pressed for time, does not have the ability to develop sensitive, valid measures, nor are they capable of controlling for every possible extraneous variable.

Undoubtedly, the present study was limited by the time constraints imposed by the logistics of the school setting, and yet, the data still generated some interesting findings. Thus, in an attempt to control for these limitations, it is recommended that future investigations attempt to control for extraneous variables such as program goal awareness, subject characteristics (Price & Smith, 1985), and Instrumentation (Cook & Campbell, 1979; Mark & Cook, 1984), and that appropriate statistical procedures be used to analyze the data (Gresham, 1985).

Second, Gresham (1985) stated that an evaluation is only as good as the instruments used to measure various outcomes. Given the lack of appropriate indices in

the extant literature, the present study utilized those measures that it deemed appropriate and even developed two behavioral simulations in an attempt to measure student's actual behaviour. However, as seen earlier, the possibility exists that the measures used were not appropriate for the present study as they were a) not strictly related to the interventions' core curriculum (Hughes and Sullivan, 1988; Price & Smith, 1985; Tisdale & St. Laurence, 1986) and / or b) they did not portray realistic and salient real-life experiences (Dodge et al. 1985). Gresham (1985) would also argue that for the most part, the instruments used were not appropriate as they did not measure an outcome which is valued by the school society. Consequently, it is recommended that future studies attempt to include measures that are socially valid, related in some respects to the intervention being studied, and that the instruments, in some way, provide the client with a description of realistic, problematically salient, situations and experiences.

A review of the literature will testify to the scarcity of outcome measures that possess these three characteristics. Valid outcome indices that enable the measurement of students' actual behaviours via analog situations are particularly sparse. Those that have been utilized in the past (e.g. Gesten, Rains, Rapkin et al., 1982; Weissberg, Gesten, Carnike, et al., 1981) were not designed on the basis of empirical research, but rather on the basis of necessity (ie. these authors needed a scenario that would provoke a response out of the focal subject). As stipulated earlier the behavioral simulations used in the present study were based on the empirical research of Dodge, et al., (1985). Their research and that of D'Zurilla and Nezu (1982) are the only two studies, to date, that have established which situations are most problematic for certain populations: maladjusted

children (Dodge et al., 1985) and adults (D'Zurilla & Nezu, 1982). Unfortunately, in the present study, the simulations themselves may not have been valid as they did not appear to be particularly problematic to the participants, who were not deemed to be specifically maladjusted. Unlike their counterparts, well-adjusted children may not consider Task Interference scenarios and limited resource tasks as problematic as other types of everyday problems and conflicts. Which types of situations are problematic to well-adjusted children remains to be seen. Future investigations may want to consider this issue and attempt to determine what type of conflicts are the most problematic to well-adjusted children. Such knowledge could be gathered either through naturalistic observations, surveys, and / or analog situations that are presented in a pre / post repeated measures design. Furthermore, as behavioral simulations cannot tap into meta-cognitive representations, the inclusion of an interview schema based on the Social Learning theories of Dodge (1986), Ladd & Mize (1983), or Rubin & Krasnor (1986) would be fruitful, as such information would enhance our ability to produce, not only psychometrically sound outcome measures, but also enriched interventions .

Third, the significant gender differences obtained in the present study warrant future investigation, as it is not clear whether these differences are true representations of the differences in the gender's views of appropriate social behaviour or whether these differences were an artifact produced by the participants' awareness of the projects goals and manipulations. Indices that tap gender-related motivation (Astri, 1996) and aggression (Crick & Grotpeter, 1995; Miller, Danaher, & Forbes, 1986) have the potential of being able to tease out this type of information. Moreover, the fact that the boys were

more likely to brainstorm in the behavioral simulations led to the speculation that their response were of a more aggressive nature because of their likelihood to try and dominate their opponents. However, as the present study did not obtain indices on the quality of generated responses, this hypothesis remains unsubstantiated. As such, future research in the area of social problem solving, would best be served by an examination of the quality of generated alternative solutions (Fischler & Kendall, 1988; Weissberg, Gesten, Rapkin, et al., 1981). Such pursuits would provide evidence concerning the program's impact on different individuals (Astri, 1996), and thus help delineate which aspects of the current program are more conducive to the acquirement of skills for boys and girls.

Finally, it is recommended that future investigations strive to procure more information concerning the fidelity of an interventions's delivery. As seen earlier, a central theme of the discussion concerned itself with the premise that the poor program implementation (at least in the second instalment of delivery), attested to by personal communiques with teachers, impromptu observation, and the teacher Implementation / Utilization questionnaire, probably produced the obtained results. The data obtained on program delivery did allow the present researcher to point out that the weakness of this intervention was not necessarily caused by the program components themselves, supporting the claims made by several evaluation research professionals (ie. Dehar et al., 1993; McGrew, et al., 1994; Price & Smith, 1985; Scheirer & Rezmovic, 1983; Weissberg & Allen, 1986). However, as other indices of program fidelity were not obtained, due to time constraints, this premise remains to be supported. Consequently, it is advocated that more research endeavors pay attention to multifaceted factors involved in the

implementation of social problem solving interventions. Some of those factors encountered in the present study included the lack of teacher training, the teacher's own personal beliefs concerning the program material, and the use of certain program components. Other factors include the recipients' receptivity and the recipients active participation in the learning process. Information of this kind can be obtained from a variety of sources, including direct observation, interviews, questionnaires, and school records. The data gleaned from these sources can then be used to document and analyze the way in which such programs work in an applied setting, invariably leading to a greater understanding of the different facets of an interventions design, implementation, and evaluation.

One further recommendation concerns the social problem solving program's model. Given that the current program was developed on the basis of Weissberg and colleagues earlier work, it must be noted that the lack of behavioral application, on the part of the students, is not uncommon (Gesten, Rains, Rapkin et al., 1982; Weissberg, Gesten, Carnike, et al., 1981; Weissberg, Caplan, & Sivo, 1989; Weissberg, Gesten, Carnike, Toro, et al., 1981; Weissberg, Gesten, Rapkin et al., 1981). Through their and others (Caplan, Weissberg, Groeber et al., 1992; Elias & Clabby, 1989; Elais, Gara, & Ubriaco, 1985) experiences in program implementation and evaluation, Weissberg and colleagues have suggested that behavioral improvements may be forthcoming if more domain-specific instruction, in combination with behavioral techniques, is integrated into the generic problem solving curriculum. Thus, it is recommended that such improvements be made to the program. Specifically, the incorporation of CDP's "Cooperative activities"

(see Battistich, et al., 1989; Solomon, Watson, Delucchi, Schaps, & Battistich, 1988) may allow the children to experience first hand, where social problem solving skills are applicable and how such knowledge helps maintain positive peer interactions. Through these activities, then, children are provided with behavioral practice opportunities. Also, homework on specific lessons, may help reinforce these skills, as it provides the children, with what Weissberg and Gesten (1982) believe to be the most important element of such programs, repetition.

One way of incorporating more domain-specific instruction, might be to base the skills through language arts and literature lessons, which provides the students the opportunity to learn why these skills are important, where and when these skills are applicable, and how to incorporate these skills into their behavioral repertoires. Also, the use of age- appropriate literature may increase the student's willingness (ie. motivation) to actually learn these skills, as they are provided with interesting and salient real-life experiences (Weissberg & Allen, 1986; Battistich, et al., 1989; Battistich, et al., 1990; Battistich, et al., 1991; Solomon, Delucchi, & Solomon, 1989; Solomon, Watson, Schaps, 1989). Changing the program towards a more behaviorally - oriented model has the potential to produce more socially competent students, as they acquire, through practice, the relevant social problem solving skills necessary for smooth interpersonal relationships. Future evaluations on the impact of this particular social problem solving program is warranted and welcomed.

In conclusion, by nature of the design utilized herein, the present study is one of the few investigations that looked at the impact of a problem solving program both cross-

sectionally and longitudinally. Despite the limited changes in the two program groups cognitive knowledge, gender differences in assertive behaviour, attitudes towards conflict, and social problem solving knowledge, suggest that in the future, separate social problem solving interventions may have to be developed for boys and girls.

The present study, also, extends the literature on students' behavioral skill application through the use of behavioral simulations that do not utilize experimenter or peer confederates, in contrast to previous methodology. Despite this innovation, the direct observation of student behavioral skill application indicated that these problem solving skills were not, visibly, being utilized, supporting previous work (eg. Weissberg, Gesten, Rapkin, et al., 1981).

The present study's results point out to the need for program implementers to develop more realistic expectations concerning program impact on students' cognitive and behavioral skills and abilities. A six-week, cognitively-based program is unlikely to produce, either immediate or long-term, changes if such programs do not incorporate more behaviourally-oriented practice opportunities. It is hoped that the present evaluation will help in the continued development of future instalments of the Conflict-Management program.

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Appendix A**Criteria for Program and Comparison School Selection**

Matching for Program and Control Schools

"Focus on Future" Schools Analysis:
Final Ranking Among 53 Ottawa Area Schools

School Rankings by Selected Topics

SCHOOL	ESL/ ESD	Household Income	% of School Pop. in Subsidized Housing	% Pop. Less than Grade 9 Education	Primary/ Junior System Test Results	Final Score Calculation	Final Ranking
Program 2 A	18	40	28	16	19	27.6	30
Program 2 B	33	22	20	12	33	23.8	23
Program 1 A	26	16	8	28	21	16.2	19
Program 1 B	23	24	39	27	26	31.2	37
Comparison 1	21	33	36	N/A	24	27	29

Note: Program 2 A and Program 2 B are the two schools that received the intervention for two consecutive years.
 Program 1 A and Program 2 B are the two schools that received the intervention for one year.
 Comparison 1 did not receive the intervention.

Program 2 B and Program 1 A are "Focus on Future" Schools.

Appendix B
Parental Informed Consent Forms

Parental Informed Consent: Program Schools

Dear parent(s) / guardian(s),

My name is Vanessa Lybanon, and I am a graduate student at Carleton University. This year as part of my program requirements, I am assisting the Ottawa Board of Education with a research project. We are conducting an evaluation of a conflict resolution out-reach program ("A Problem Solving Approach to Conflict Resolution"), currently being implemented by the Ottawa Board of Education. This project has been approved by the Ottawa-Carleton advisory research committee and by the principal of your child's school.

As you may already know, this program is entering its second year and will be teaching your children basic skills in problem solving. Some of the skills being taught include: some ways of recognizing feelings in others, the different strategies often involved in conflict resolution, and the importance of thinking about the consequences of an action before it is put into place.

The goal of my project is to discover those areas which are most helpful in teaching children in an interesting and enjoyable manner and to identify areas of the program that may need some improvement. Obtaining such information is important because children today are faced with the increasing pressures of a continuously changing environment, making it difficult for them to cope effectively. In order for them to manage these problems, today's children need to be taught how to deal with their problems in a calm and peaceful way. "A Problem-Solving Approach to Conflict Resolution" is a program with such a goal in mind. Thus, to ensure that the program is meeting its goals, information on its effectiveness needs to be gathered. To do this, we require the participation of both children who participated and those who did not participate in a similar project administered last year.

The proposed project entails the gathering of information through several different means. First, the children will be asked to fill out some questionnaires concerning their knowledge of the program. Second, the children will participate in group play activities, where they will have the opportunity to practice these skills. These activities will entail will be video-taped, so that an accurate picture of words and skills can be obtained. These video-tapes will be erased after all behavioral and verbal responses have been coded by myself. The whole process will take approximately 1 hour and 15 minutes of your child's time, and the times for these procedures will be scheduled at the teacher's convenience to minimize interference in your child's daily routine.

It is important for you to know that this information will only be obtained from those children, for whom written parental consent has been granted. Also, if at any time, your child does not wish to participate in the proposed activities, he or she has the right to withdraw from the project altogether. In such cases, all information already gathered will

be promptly destroyed. As well, all information obtained from your child will be kept strictly confidential and anonymous. No one but myself will see any of the responses that your child has made.

In closing, I wish to thank you in advance for your time and your consideration. Having assisted the Ottawa Board of Education in the past on a similar project involving Summer School, I am familiar with the privacy and confidentiality standards the Board has in place, concerning research of this type. If you have any questions concerning the proposed project, please do not hesitate to call me, **Vanessa Lybanon**, at 777-8037, or my primary supervisor, **Dr. T. Daniels** (Carleton University) at 788-2600, ext. 2686. Questions and concerns may also be addressed to **Jane Legg**, program supervisor of the "Children Learning For Living" program, at 239-2668. Any questions and ethical concerns may be addressed to the **Lise Paquet**, chair of the ethics department at Carleton University, at 788-2600, ext. 2692.

Thank-you

Vanessa Lybanon

Please sign and return this section to your child's teacher by ...

This information is confidential and is protected under the Municipal Freedom of Information and Protection of Privacy Act, 1989. I have read and understood the request for my son/daughter to participate in the research project entitled *Assessing the Impact of a Primary Prevention Program in its' Second Year of Implementation*. I have discussed it with my son/daughter and...

_____ I give permission for my son/daughter to participate.

_____ I do not give permission for my son/daughter to participate.

Name of Student: (please print) _____ Date: _____

Name of Parent/Guardian: (please print) _____

Signature of Parent/ Guardian: _____

Parental Informed Consent: Comparison School

Dear parent(s)/ guardian(s),

My name is Vanessa Lybanon, and I am a graduate student at Carleton University. This year as part of my program, I am helping the Ottawa Board of Education with a research project. We are conducting an evaluation of a conflict resolution out-reach program ("A Problem Solving Approach to Conflict Resolution"), currently being introduced by the Ottawa Board of Education. This project has been approved by the Ottawa-Carleton Advisory Research Committee and by the principal of your child's school.

Many of you may be aware that this program is not yet in use in your school, but that it has been introduced to some schools. The program aims to teach children problem solving skills so that they may be able to resolve their problems on their own. Some of the words and skills being taught include: some ways of recognizing feelings in others, the different ways to solve a conflict or problem, and the importance of thinking about the consequences of an action before it is put into place.

The goal of my project is to discover those areas which are most helpful in teaching children in an interesting and fun way and to identify those parts of the program that may need some improvement. Obtaining such information is important because children today are faced with the increasing pressures of an always changing environment, making it hard for them to cope effectively. In order for them to manage these problems, today's children need to be taught how to deal with their problems in a calm and peaceful way. "A Problem-Solving Approach to Conflict Resolution" is a program with such a goal in mind. Thus, to make sure that the program is meeting its goals, information on its effectiveness needs to be gathered. Your school would act as a comparison to two schools that have the program this year. Your school has been selected because it is similar in many characteristics (such as school size) to those schools receiving the program. Participation of schools that do not have the program is critical to the success of this evaluation. This will help us learn more about how children acquire problem solving skills on their own in comparison to children who receive formalized instruction in problem solving skills. In turn, this will allow us to learn more about what changes need to be made to the program.

The proposed project entails the gathering of information through several different means. First, the children will be asked to fill out some questionnaires concerning their knowledge of the program. Second, the children will participate in group play activities, where they will be able to practice these skills. These activities will be video-taped, so that an accurate picture of their words and skills can be obtained. These video-tapes will be erased after all behavioral and verbal responses have been coded by myself. The whole process will take approximately 1 hour and 15 minutes of your child's time, and the times for these procedures will be scheduled at the teacher's convenience to minimize

interference in your child's daily routine.

It is important for you to know that this information will only be obtained from those children for whom written parental consent has been granted. Also if at any time, your child does not wish to participate in the proposed activities, he or she has the right to withdraw from the project altogether. In such cases, all information already gathered will be promptly destroyed. As well, all information obtained from your child will be kept strictly confidential and anonymous. No one but myself will see any of the responses that your child has made.

In closing, I wish to thank you in advance for your time and your participation. Having assisted the Ottawa Board of Education in the past on a similar project involving Summer School, I am familiar with the privacy and confidentiality standards the Board has in place, concerning research of this type. If you have any questions concerning the proposed project, please do not hesitate to call me, **Vanessa Lybanon**, at 777-8037, or my primary supervisor, **Dr. T. Daniels** (Carleton University) at 788-2600, ext. 2686. Questions and concerns may also be addressed to **Jane Legg**, program supervisor of the "Children Learning For Living" program, at 239-2668. Any questions and ethical concerns may be addressed to the **Lise Paquet**, chair of the ethics department at Carleton University, at 788-2600, ext. 2692.

Thank-you

Vanessa Lybanon

Please sign and return this section to your child's teacher by ...

This information is confidential and is protected under the Municipal Freedom of Information and Protection of Privacy Act, 1989. I have read and understood the request for my son/daughter to participate in the research project entitled *Assessing the Impact of a Primary Prevention Program in its' Second Year of Implementation*. I have discussed it with my son/daughter and...

_____ I give permission for my son/daughter to participate.

_____ I do not give permission for my son/daughter to participate.

Name of Student: (please print) _____ Date: _____

Name of Parent/Guardian: (please print) _____

Signature of Parent/ Guardian: _____

Appendix C

"A Problem Solving Approach to Conflict Management"

Classroom Posters

Calming Down Ideas

Feelings

LONELY		SCARED		WORRIED
	SHY		DISAPPOINTED
HAPPY	—	?		CALM
	SAD		LOVE
ANGRY		NERVOUS		PROUD

"I Talk"

I feel

when

I want

Constructive Ways to Handle Conflict

Steps to Problem Solving

1

TALKING TIME

What is the problem?

How do you feel?

What do you want?

2

ACTION TIME

Brainstorm ideas

Test ideas by asking

"What would happen if..."

Choose the best idea.

Try it.

If it doesn't work, try another,
and another...

Steps for Managing Conflict

**STOP
and
THINK**

**AGREE
to
TALK IT
OVER**

**MAKE
A DEAL**

- 1 Tell your side and your feelings.
- 2 Listen to the other person's side and feelings.
- 3 Tell what you want.
- 4 Listen to what the other person wants.

Appendix D**General Instructions to Students**

General Instructions to Students

Hi, my name is (your name) and I am a student at Carleton University. I am here today because I want to learn more about students your age, what you like, what you think about things, and how you behave in certain situations.

You can help me learn more about people your age by filling out some forms that I am going to give you in a moment (show forms). The reason I need your help is that I have forgotten what it's like being a child your age. When you answer the questions on these forms (show forms) you're helping me remember.

Now these forms have questions on them, and I'd like you to answer them for me. When you look at the forms, you will think that they look just like a test you may have to do for school. But these forms are not tests. They are called surveys and they ask you to tell me what it is you think about, what you feel about certain things, and how you behave in certain situations. There are *no right answers* or *wrong answers* to these questions. There are *no right or wrong answers* to these questions because everyone here is different from everyone else. We all have different ideas and different feelings about certain things. The only important thing about these surveys is that you tell me truthfully your ideas and how you feel about what the questions are asking you. O.K.

Your answers to these questions will be kept private. The only people who are going to see your answers will be myself and the other people from Carleton University who are helping me today. That means that your friends, your parents and your teachers are not going to be allowed see any of your answers. Also, you don't have to answer any question that you don't feel right about, that you feel uncomfortable answering.

We are going to start answering the surveys one at a time. For each survey, I will give you the instructions, and then we will practice with a sample question. When I am sure that you understand how to fill out the survey, you and I will fill it out together. I will read the questions aloud to you, while you read them silently to yourselves. Once I have read the question, you will put down your answer, and we will go on to the next question. That is why you have to listen really carefully to what I am saying, so that we can all finish at the same time.

Please do not talk while you are answering these questions, and don't look to see what the person next to you is doing. Remember, you have the right to keep your answers private, so if you think that someone is looking at your answers cover them with a book, or tell me and I will ask that person to sit somewhere else.

If you have any questions about these forms, please ask me. Are there any questions? (Answer any questions that are asked). Try not to work ahead. Remember to stop when you see the last question. If you do finish before everyone else is draw a picture on the blank page until we're ready to go on. Okay, then let's begin.

Appendix E

The Children's Assertive Behaviour Questionnaire

(Michelson & Wood, 1981)

"What Would You Usually Do?"

"What Would You Usually Do?"**INSTRUCTIONS**

Now in this survey, you are going to answer some questions about what you do in many situations. There are not any "RIGHT" or "WRONG" answers. You are just to answer what YOU would really do. For example, a question might be:

"What do you do if someone does not listen to you when you are talking to them?"

Try to think about what you would do if someone does not listen to you when you are talking to them?

Would anyone like to share what they would usually do (get some examples)
[If there are not any negative answers, provide your own from the choices below (e) or (a).]

Now that you have some ideas of how you would usually act, look over the answers that you can choose from.

You have to choose the answer that is like what you would usually do.

"What do you do if someone does not listen to you when you are talking to them?"

- a) Tell them to listen.
- b) Keep on Talking.
- c) Stop talking and ask them to listen.
- d) Stop talking and walk away.
- e) Talk louder.

From these five (5) answers, you are to decide which one is MOST like the one you would do. If you don't find the answer that you thought of in the list, try to pick an answer that is like your answer. Now circle the letter that is most like you.

If you cannot understand a word, question, or answer, then raise your hand and you will be helped. Remember to answer honestly about how you would act. Also there are not any "RIGHT" or "WRONG" answers so choose the answer that is MOST like you.

Now, we will answer the questions. (Read each question and pause so the students think of their answer, then read the answers).

I Want to Know What You Would Usually Do

EXAMPLE:

"What do you do if someone does not listen to you when you are talking to them?"

- (a) Tell them to listen.
- (b) Keep on talking.
- (c) Stop talking and ask them to listen.
- (d) Stop talking and walk away.
- (e) Talk louder.

1. Someone says to you, "I think you are a very nice person." You would usually:

- (a) Say "No, I'm not that nice."
- (b) Say "Yes, I think I am the best."
- (c) Say "Thank you."
- (d) Say nothing and blush.
- (e) Say "Thanks, I am really great."

2. Someone does something that you think is really great. You would usually:

- (a) Act like it wasn't that great and say "That was all right."
- (b) Say "That was all right, but I've seen better."
- (c) Say nothing.
- (d) Say "I can do much better than that."
- (e) Say "That was really great!"

3. You are working on something you like and think is very good. Someone says, "I don't like it!" You would usually:

- (a) Say "You're a dummy!"
- (b) Say "I think it's good."
- (c) Say "You are right," although you don't really agree.
- (d) Say "I think this is great, besides, what do you know!"
- (e) Feel hurt and say nothing.

4. You forget something you were supposed to bring and someone says, "You're so dumb!" You would usually:

- (a) Say "I'm smarter than you any day; besides what do you know!"
- (b) Say "Yes, you're right, sometimes I do act dumb."
- (c) Say "If anybody is dumb, it's you!"
- (d) Say "Nobody's perfect. I'm not dumb just because I forgot something!"
- (e) Say nothing or ignore it.

5. Someone you were supposed to meet arrives 30 minutes late, which makes you upset. The person who was late says nothing about why they were late. You would usually:

- (a) Say "I'm upset that you kept me waiting like this."
- (b) Say "I was wondering when you'd get here."
- (c) Say "This is the last time I'll wait for you!"
- (d) Say nothing to the person.
- (e) Say "You're a jerk! You're late!"

6. You need someone to do something for you. You would usually:

- (a) Not ask for anything to be done.
- (b) Say "You gotta do this for me!"
- (c) Say "Would you please do something for me," and then explain what you want.
- (d) Give a small hint that you need something done.
- (e) Say "I want you to do this for me."

7. Someone asks you to do something that would keep you from doing what you really want to do. You would usually:

- (a) Say "I did have other plans, but I'll do what you want."
- (b) Say "No way! Find someone else."
- (c) Say "OK, I'll do what you want."
- (d) Say "Forget it, shove off!"
- (e) Say "I've already made other plans, maybe next time."

8. You see someone you would like to meet. You would usually:

- (a) Yell at the person and tell them to come over to you.
- (b) Walk over to the person, introduce yourself, and start talking.
- (c) Walk over near the person and wait for him to talk to you.
- (d) Walk over to the person and start talking about great things you have done.
- (e) Say nothing to the person.

9. Another student you haven't met before stops and says "hello" to you. You would usually:

- (a) Say "What do you want?"
- (b) Not say anything.
- (c) Say "Don't bother me. Get lost!"
- (d) Say "hello," introduce yourself, and ask who they are.
- (e) Nod your head, say "hi," and walk away.

10. You know that someone is feeling upset. You would usually:

- (a) Say "You seem upset; can I help?"
- (b) Be with them and not talk about their being upset.
- (c) Say "What's wrong with you?"
- (d) Not say anything and leave them alone.
- (e) Laugh and say "you're just a big baby!"

11. YOU are feeling upset, and someone says, "You seem upset." you would usually:

- (a) Turn your head away or say nothing.
- (b) Say "It's none of your business!"
- (c) Say "Yes, I am upset, thank you for asking."
- (d) Say "It's nothing."
- (e) Say "I'm upset, leave me alone."

12. Someone else makes a mistake and someone blames it on you. You would usually:

- (a) Say "You're crazy!"
- (b) Say "That wasn't my fault, someone else made the mistake."
- (c) Say "I don't think it was my fault."
- (d) Say "Wasn't me, you don't know what you're talking about!"
- (e) Take the blame or say nothing.

13. Someone asks you to do something, but you don't know WHY it has to be done. You would usually:

- (a) Say "This doesn't make any sense, I don't want to do it."
- (b) Do what they ask and say nothing.
- (c) Say "This is dumb, I'm not going to do it!"
- (d) Before doing it, say "I don't understand why you want this done."
- (e) Say "If that's what you want" and then do it.

14. Someone says to YOU, they think that something you did was terrific. You would usually:

- (a) Say "Yes, I usually do better than most."
- (b) Say "No, that wasn't so hot."
- (c) Say "That's right, because I'm the best."
- (d) Say "Thank you."
- (e) Ignore it and say nothing.

15. Someone has been very nice to you. You would usually:

- (a) Say "You have been really nice to me, thanks."
- (b) Act like they weren't that nice and say "Yea, thanks."
- (c) Say "You have treated me all right, but I deserve even better."
- (d) Ignore it and say nothing.
- (e) Say "You don't treat me good enough!"

16. You are talking very loudly with a friend and someone says, "Excuse me, but you are being too noisy." You would usually:

- (a) Stop talking immediately.
- (b) Say "If you don't like it, get lost!", and keep on talking loudly.
- (c) Say "I'm sorry, I'll talk quietly" and then talk in a quiet voice.
- (d) Say "I'm sorry" and stop talking.
- (e) Say "All right" and continue to talk loudly.

17. You are waiting in line and someone steps in front of you. You would usually:

- (a) Make quiet comments such as, "Some people have a lot of nerve," without actually saying anything directly to person.
- (b) Say "Get to the end of the line!"
- (c) Say nothing to the person.
- (d) Say loudly, "Get out of this line you creep!"
- (e) Say "I was here first, please go to the end of the line."

18. Someone does something to you that you don't like and it makes you angry. You would usually:

- (a) Shout "You're a creep, I hate you!"
- (b) Say "I am angry, I don't like what you did."
- (c) Act hurt about it but not say anything to the person.
- (d) Say "I'm mad. I don't like you!"
- (e) Ignore it and not say anything to the person.

19. Someone has something that you want to use. You would usually:

- (a) Tell them to give it to you.
- (b) Not ask to use it.
- (c) Take it from them.
- (d) Tell the person you would like to use it, and then ask to use it.
- (e) Make a comment about it, but not ask to use it.

20. Someone asks if they can borrow something of yours, but it is new and you don't want to let them use it. You would usually:

- (a) Say "No, I just got it and I don't want to lend it out; maybe some other time."
- (b) Say "I really don't want to, but you can use it."
- (c) Say "No, go get your own!"
- (d) Give it to them even though you don't want to.
- (e) Say "You're crazy!"

21. Some people are talking about a hobby you really like, and you want to join in and say something. You would usually:

- (a) Not say anything.
- (b) Interrupt the people and immediately start telling them how good you are at this hobby.
- (c) Move closer to the people and enter into the conversation when you have a chance.
- (d) Move closer to the people and wait for them to notice you.
- (e) Interrupt the people and immediately start talking about how much you like the hobby.

22. You are working on a hobby and someone asks, "What are you doing?" You would usually:

- (a) Say "Oh, just something" or "Oh, nothing."
- (b) Say "Don't bother me. I can't you see I'm working."
- (c) Keep on working and say nothing.
- (d) Say "It's none of your business!"
- (e) Stop working and explain what you were doing.

23. You see someone trip and fall down. You would usually:

- (a) Laugh and say "Why don't you watch where you're going?"
- (b) Say "Are you all right, is there anything I can do?"
- (c) Ask "What happened?"
- (d) Say "That's the breaks!"
- (e) Do nothing and ignore it.

24. You bumped your head on a shelf and it hurts. Someone says, "Are you all right?" You would usually:

- (a) Say "I'm fine, leave me alone!"
- (b) Say nothing and ignore them.
- (c) Say "Why don't you mind your own business!"
- (d) Say "No, I hurt my head, thanks for asking."
- (e) Say "It's nothing, I'm OK."

25. YOU made a mistake and someone else is blamed for it. You would usually:

- (a) Say nothing.
- (b) Say "It's their mistake!"
- (c) Say "I made the mistake."
- (d) Say "I don't think that person did it."
- (e) Say "That's their tough luck!"

26. You fee insulted by something someone said to you. You would usually:

- (a) Walk away from them, but don't tell them you feel upset.
- (b) Tell them not to do it again.
- (c) Say nothing to the person, although you feel insulted.
- (d) Insult them back and call them a name.
- (e) Tell them you don't like what they said and tell them not to do it again.

27. Someone often interrupts you when you're speaking. You would usually:

- (a) Say "Excuse me, I would like to finish what I was saying."
- (b) Say "This isn't fair, don't I get to talk?"
- (c) Interrupt the other person by starting to talk again.
- (d) Say nothing and let the person continue to talk.
- (e) Say "Shut up, I was talking!"

Appendix F

Student Attitudes About Conflict

(Jenkins & Smith, 1987)

"I Want to Know How You Get Along with Other People"

"I Want to Know How You Get Along with Other People"

INSTRUCTIONS:

In this survey, I would like to know some more about you and how you get along with other people. This time I am going to read you some sentences and I want you to tell me if you agree with the sentence or you don't agree. Let's review what you are to do.

Example:

I like pineapple on my pizza.	Strongly Disagree	Disagree	Agree	Strongly Agree
--------------------------------------	------------------------------	-----------------	--------------	---------------------------

How do you feel about that sentence?

Well, who likes pineapple on their pizza? (Get a few responses out loud)

How many people here like pineapple on their pizza? (Get a show of hands)

Everyone who put their hand up likes pineapple on their pizza so the **AGREE** with the sentence "I like pineapple on my pizza". Everyone who likes pineapple on their pizza will look at this side of the page (point). This is the left side. This is the side to look at if you **AGREE** with the sentence.

Now do you **REALLY REALLY** agree with the sentence "I like pineapple on my pizza". If you do then you would circle the words "Strongly Agree". If you don't like pineapple on your pizza a lot but you like it a little then you would circle the words "Somewhat Agree".

Now, not everyone likes pineapple on their pizza. Who does **NOT** like pineapple on their pizza? (get a show of hands). Everyone who put up their hand does **NOT** like pineapple on their pizza so they **DISAGREE** with the sentence "I like pineapple on my pizza". Everyone who does not like pineapple on their pizza will look at this side of the page (point), the right side. This is the side to look at if you **DISAGREE** with the sentence.

Now do you **REALLY REALLY** disagree with the sentence "I like pineapple on my pizza". Do you really **NOT** like pineapple on your pizza? If you **REALLY REALLY** don't like pineapple on your pizza you would circle the words "**STRONGLY DISAGREE**".

Has everyone circled one? Circle only one, the one most like you.

Are there any questions? Does everyone understand?

Let's go on and try each question. Remember for each question **FIRST** decide if you **agree** or **disagree**. Then go to the left side of the paper (point) or the right side of the paper (point). Then decide if you **STRONGLY** or **SOMEWHAT** agree or disagree.

I Want to Know How You Get Along With Other People

For each sentence, circle the words that best describes how you get along with other people. Remember there are not any "right" or "wrong" answers, only how you feel.

		Example: I like pineapple on my pizza.		
Strongly Agree	Somewhat Agree		Somewhat Disagree	Strongly Disagree
Strongly Agree	Somewhat Agree	1. Most of the time I feel good about myself.	Somewhat Disagree	Strongly Disagree
Strongly Agree	Somewhat Agree	2. Other children think I'm someone they can talk to.	Somewhat Disagree	Strongly Disagree
Strongly Agree	Somewhat Agree	3. I like school and look forward to coming most days.	Somewhat Disagree	Strongly Disagree
Strongly Agree	Somewhat Agree	4. Asking someone questions helps to find out how they feel.	Somewhat Disagree	Strongly Disagree
Strongly Agree	Somewhat Agree	5. Most children would like to have me as a friend.	Somewhat Disagree	Strongly Disagree
Strongly Agree	Somewhat Agree	6. I have a hard time resolving conflicts with other people.	Somewhat Disagree	Strongly Disagree

Strongly Agree	Somewhat Agree	7. I like to see teachers get mad in class.	Somewhat Disagree	Strongly Disagree
Strongly Agree	Somewhat Agree	8. If I saw my friends fighting, I would try to get them to talk out the problem instead.	Somewhat Disagree	Strongly Disagree
Strongly Agree	Somewhat Agree	9. I get along really well with other people.	Somewhat Disagree	Strongly Disagree
Strongly Agree	Somewhat Agree	10. When people talk I have a hard time paying attention.	Somewhat Disagree	Strongly Disagree
Strongly Agree	Somewhat Agree	11. I don't like school very much.	Somewhat Disagree	Strongly Disagree
Strongly Agree	Somewhat Agree	12. Sometimes a person doesn't have any choice but to fight.	Somewhat Disagree	Strongly Disagree
Strongly Agree	Somewhat Agree	13. To help someone with a problem, you have to ask them how they feel about it.	Somewhat Disagree	Strongly Disagree
Strongly Agree	Somewhat Agree	14. I want to do well in school.	Somewhat Disagree	Strongly Disagree

Strongly Agree	Somewhat Agree	15. When children I'm with want to do something bad, I can usually talk them out of it.	Somewhat Disagree	Strongly Disagree
Strongly Agree	Somewhat Agree	16. I think most people at school really like me.	Somewhat Disagree	Strongly Disagree
Strongly Agree	Somewhat Agree	17. It's hard to talk to a teacher about my feelings.	Somewhat Disagree	Strongly Disagree
Strongly Agree	Somewhat Agree	18. There is at least one thing I'm really good at.	Somewhat Disagree	Strongly Disagree
Strongly Agree	Somewhat Agree	19. Other children will think I'm afraid if I don't fight when someone makes me mad.	Somewhat Disagree	Strongly Disagree
Strongly Agree	Somewhat Agree	20. My teachers really care about me.	Somewhat Disagree	Strongly Disagree
Strongly Agree	Somewhat Agree	21. If someone hits me I usually hit them back to get even.	Somewhat Disagree	Strongly Disagree
Strongly Agree	Somewhat Agree	22. It's easy for me to explain things to other children my age.	Somewhat Disagree	Strongly Disagree

Strongly Agree	Somewhat Agree	23. Fighting with someone can be a good way to solve a problem.	Somewhat Disagree	Strongly Disagree
Strongly Agree	Somewhat Agree	24. I like to get involved with school activities.	Somewhat Disagree	Strongly Disagree
Strongly Agree	Somewhat Agree	25. I'm good at helping people solve their problems.	Somewhat Disagree	Strongly Disagree
Strongly Agree	Somewhat Agree	26. Other children would think I'm strange if I tried to stop a fight.	Somewhat Disagree	Strongly Disagree
Strongly Agree	Somewhat Agree	27. I like to help my teachers.	Somewhat Disagree	Strongly Disagree
Strongly Agree	Somewhat Agree	28. I work well with others.	Somewhat Disagree	Strongly Disagree
Strongly Agree	Somewhat Agree	29. Most people don't like what I'm really like.	Somewhat Disagree	Strongly Disagree
Strongly Agree	Somewhat Agree	30. I try to talk out a problem instead of fighting.	Somewhat Disagree	Strongly Disagree

Strongly Agree	Somewhat Agree	31. Teachers think I cause a lot of trouble.	Somewhat Disagree	Strongly Disagree
Strongly Agree	Somewhat Agree	32. I treat other people well.	Somewhat Disagree	Strongly Disagree

Appendix G

Specific Knowledge Questionnaire

(Daniels, & Lybanon, unpublished)

"What Do You Think?"

"What Do You Think?"**INSTRUCTIONS:**

For this survey we would like to know what you think about things. This survey has multiple choice questions, so we want you to read *ALL* the possible answers for each question, then circle the answer *YOU* think is the *BEST*.

Please turn to page X (to be determined at a later date).

For example, the sample question says:

Baseball is...

- a) a game I don't really like and try to avoid playing.
- b) a game I really don't like.
- c) a game I like.
- d) a game I only play when my friends and I can't think of something better to do.

Now think about baseball. How much do you like to play it? (Pause for a minute to let the students think). If you *don't like* baseball and try to avoid playing it, circle the letter *a*. If you *really don't like* baseball circle the letter *b*. If you *like* playing baseball circle the letter *c*. If you only play baseball when you *can't think of anything better to do*, circle the letter *d*.

Any questions? (Answer any questions that are asked.)

O.K. lets begin.

Please **STOP** at the end of question 28 and wait for instructions.

SAMPLE QUESTION

Baseball is...

- a) a game I don't really like and try to avoid playing.
- b) a game I really don't like.
- c) a game I like.
- d) a game I only play when my friends and I can't think of something better to do.

PLEASE STOP HERE AND WAIT UNTIL YOUR INSTRUCTOR TELLS YOU TO BEGIN.

1. Which of the following is a conflict situation?

- a) When someone talks to you in class.
- b) When someone does something nice for you.
- c) When someone tries to copy the way you dress.
- d) When someone butts in front of you in line.

2. Conflict situations usually occur because

- a) the other person is out to get you.
- b) the other person has a problem.
- c) the other person has their own point of view and neither is 100% right or wrong.
- d) the other person is not your friend.

3. When you have a problem at school

- a) you should do whatever other people in your class tell you to do.
- b) you should think of one perfect solution to the problem.
- c) you should think of several solutions that might solve the problem.
- d) you should use the same solution you used the last time you had a problem.

4. When you have an argument with someone, which strategy would work best in trying to solve the problem?

- a) Taking a deep breath and counting to 10 before you try to talk to the other person.
- b) Running away.
- c) Fighting back if the other person started it.
- d) Yelling loudly to make the other person understand your point of view.

5. If someone started a fight with you, would you ...
- a) feel that you have to stand up for yourself and fight back.
 - b) feel that it's **OK** to walk away and ignore the person.
 - c) feel that you should tell the person off.
 - d) feel that you could talk it out and fix the problem.
6. When you are angry with someone do you usually...
- a) keep it to yourself.
 - b) try to talk to the person about it.
 - c) do something to make the other person pay.
 - d) get your friends to ignore the person you are angry with.
7. The best way to solve a problem with someone is to...
- a) stay out of the person's way, pretending that the problem doesn't exist.
 - b) get an adult to decide who is right.
 - c) tell the person you will do something bad to them if you don't get your own way.
 - d) tell the person your feelings and listen carefully to theirs.
8. An argument will most likely turn into a fight if you don't...
- a) listen to the other person's concerns.
 - b) make them see that you are right.
 - c) make sure the other person knows you won't back down.
 - d) try to smooth things over.
10. Why should you calm down when you are angry with another person?
- a) because it is easier to plan your revenge when you are calm.
 - b) calming down is not important.
 - c) because it is easier to talk to the teacher.
 - d) because it is easier to think clearly and work out a solution when you are calm.
11. What are the steps you would go through to work out a problem with another student?
- a) tell a teacher, then talk about the problem with the teacher and the student.
 - b) beat the student up, then tell the student why the problem should be solved your way.
 - c) talk to the student about the problem, come up with ideas about how you could solve the problem, try these ideas out.
 - d) try to ignore the problem and if that doesn't work, tell the student off and get all your friends to tell the student off.

13. You are home and your brother/sister won't let you watch your favourite show because they want to watch something different. Would you...

- a) threaten to beat your brother/sister up if you can't watch your show.
- b) go and tell a parent what's happening.
- c) decide to let your brother / sister watch the program they want to watch, if you can watch your favourite show tomorrow night.
- d) give up and find something else to do.

14. Which of the following best describes a conflict situation?

- a) conflicts are things that have no solution.
- b) conflicts are bad and should be avoided at all costs.
- c) conflicts are alright if you are the one that wins.
- d) conflicts are only a problem if people don't listen to each other.

15. When the solution you and your friends thought would resolve your problem doesn't work, would you...

- a) go back to your list of solutions and try another.
- b) give up
- c) have your friends solve the problem for you.
- d) try the solution again, maybe this time it will work.

16. Mike and Jane are both thirsty after playing a baseball game. They both run to the water fountain and get there at the same time. Jane and Mike start arguing about who will drink first. To solve their problem they could...

- a) calm down, talk about it and decide to base their decision on who gets to pick first at the next baseball game.
- b) start to shove and push each other out of the way, each trying to get in front of the other one.
- c) run and tell the teacher what happened.
- d) both start insulting one another.

17. Once you and your friends come up with a lot of different strategies to your problem, which is the best way of deciding which of the strategies to use?

- a) keep on trying to come up with the perfect solution to your problem.
- b) using the solution you thought up yourself, because all the other ones sound dumb to you.
- c) use the question "what would happen if..." and think of what the consequences of each solution would be if you used it.
- d) choose the first solution you thought of and if that doesn't work, just quit.

18. You are angry at your brother/sister because he/she broke your favourite toy. Would you...

- a) go and find one of their favourites toys and break it.
- b) tell them how you feel and suggest some way that they could make it up to you.
- c) keep your feelings to yourself.
- d) run to your parents and tell them what your brother/sister did.

19. What does the word "compromise" mean?

- a) one person gets everything and the other person gets nothing.
- b) both people give up something and both get something.
- c) no one gets what they want.
- d) the person who fights the hardest gets what they want.

20. Jason and Bill are playing in the park. They both want to play on the swings, but there is only one swing left. Which of the following is an example of a compromise?

- a) Bill gets the swing and plays on it.
- b) They take turns playing on the swing.
- c) Jason grabs the swing and plays on it.
- d) Their parents come to pick them up and no one gets to play on it.

21. You and your best friend are playing baseball. Your friend however is striking-out during the whole game. Other kids on the team are teasing her and she feels pretty lousy. What would you do to help her feel better?

- a) tell her to try again.
- b) ignore what is happening.
- c) suggest that you go play another game for a while, you can always help her with batting practice later.
- d) tell the other kids to shut-up.

22. A "put-down" or an insult is

- a) alright if you say you're sorry afterwards.
- b) alright if you say you're "just kidding".
- c) alright if you are mad at the person.
- d) never alright because it hurts people's feelings.

23. What is the best way of dealing with a "put-down" or an insult, if it hurts your feelings?

- a) talk the issue over and try to tell the other person how you felt in the situation.
- b) wait for a chance to put the person down when he/she are not suspecting it.
- c) make fun of the person in front of their friends.
- d) don't let the person know that they hurt your feelings.

24. What is the best way to let people know they are bugging you?

- a) tell the person to get lost.
- b) tell the teacher.
- c) tell the person how you feel when they bug you.
- d) threaten to beat the person up if they don't leave you alone.

STOP HERE AND WAIT FOR YOUR INSTRUCTOR TO TELL YOU TO CONTINUE.

Appendix H

Children's Debriefing for Survey Material

Debriefing for Survey Material

Thank you for filling out these forms today. Your answers to these questions will really help me understand more about students your age.

We will be going to many different schools and asking many children the same questions we asked you. When we put everyone's answers together we will know a lot more about children your age and how they get along at school. This will help us figure out the kinds of problems children have and the best way to help them. You have been a big help to us.

Does anyone have any questions?

Thank you again for your help.

Appendix I

Actual Conflict Situations

(Daniels, T., & Lybanon, V. unpublished)

Actual Conflict Situations.

INSTRUCTIONS:

Scene 1. "Hi (child's name). My name is (your name) and I'm a graduate student from Carleton University. I'm going to ask you to come with me to the (library) where we're going to play a couple of games. Now tell me, do you know what we're going to do here today? That's right, we'll be playing some games and a video-camera is going to tape you while you play those games.

E. asks one child to go into the "testing" room, while the other child is asked to wait outside.

To the child in the room: Here we are. O.K. Before we begin, I'd like to ask you if you can help me. Do you see those books in the box on the floor? Well, can you put them on that shelf for me, while I go get something? You can, great. It doesn't matter how you put them on, I just need to have those books on the shelf, but you can't take more than two books at a time. I have to go and get some other things to put in this room. O.K.? Now, if you can get all those books on the table (or shelf) by the time I get back, I'll give you points towards a prize. Do you understand what I just asked you to do? (if not, repeat the task, until they have understood) Good I'll be right back.

Remind the child that they will be video-taped. Before I go, I want to tell you that I have a video camera in the room. I'm going to video tape you while you play some of the games. That's so I don't miss anything that's happening while you are playing, because I can't see everything that's going to happen when you play the games."

(the experimenter goes outside the "testing" room to meet with the child waiting outside)

To the child in the room: O.K. I'm going to ask you to go inside the room, while I go get something for the games. When you enter the room you will see some books on a table (or shelf) and an empty box right next to the table. I want you to take the books off the table (or shelf) and put them into the empty box. Can you do that for me? (make sure child understands that task--have them repeat what you said). Now, if you can get all the books into the box by the time I get back, I'll give you points towards a prize. O.K. you can go in now, I'll be right back. (child enters the room, the E. stands outside for approximately 5 minutes).

Remind the child that they will be video-taped.

After the elapsed time has past the experimenter enters the room. "Oh I'm sorry, I didn't realize that you were still putting the books on the shelf. That's why I told (Name of Child) to put them on the desk for me. Oh, what a mistake I have made. I'm sorry. Why don't we stop this and sit down to play a game. Can the both of you sit over there? That's right at the table like that."

Scene 2. "Now I'm going to give you each a small box of "Legos" and I'd like you to make the astronaut exactly like he looks on the box. This game is timed, so I'd like you to work as quickly as you can. I'll give you five minutes to put the puzzle together completely. The astronaut that looks exactly like the one on the front cover of the box will get points towards a prize. Are there any questions? (answer any that come up). I'm going to go and wait outside the classroom, while you play the game. I need to talk to my friend about something and I don't want to bother you while you play. When you are finished I want you to tell me, by yelling out "I'm finished". That's so I know when to come back, stop the timer, and find out who finished first, O.K. O.K. I'm starting the watch now. BEGIN!

Remind the children that they will be video-taped.

"Boy that was really fast. Did you guys have fun. Oh, really, I didn't realize that you were missing some pieces. You were still able to finish the puzzle though so that's what counts (**say only if they have finished the puzzle**). O.K. now I'm going to give you this big box and I want you to make something with the pieces. You can make whatever you want with it.

At this point the experimenter tells the students why they were asked to play these games (see the Appendix J for the debriefing).

Scene 1

Dyadic Interaction

Target child 1 is brought into the designated testing room by the experimenter. He/she is told to take the books out of the box on the floor and to place them on the book shelf in any order they choose. The experimenter then leaves the room on the pretext of having forgotten something. At this time the experimenter goes to the classroom and recruits another child. On the way to the testing room, the experimenter tells the child to go in the room and take the books off the shelf and put them on the table beside the shelf. Without entering the room, the experimenter tells the second target child to go in and complete the task. The experimenter tells the child that he/she will be right back, he/she seems to have forgotten something. While the children are completing the task, the experimenter (s) are watching their behaviour from outside the classroom. Approximately five minutes later, the experimenter enters the room and apologizes to the children for having caused the misunderstanding. He/she then tells the children they are going to play another game and positions the children in the middle of the room on the floor.

Scene 2

Dyadic Interaction

The target children are now on the floor in the middle of the room. The experimenter gives each child a box of "Legos". Each child has the same puzzle. The boxes have been carefully altered so that neither child has all the pieces he/she needs to complete the puzzle. The potential conflict arises for the two children when they notice the missing pieces. At this time, the children have to try and solve their problem. The experimenter tells the children that they are to build the design that is on the front of the box (in this case an astronaut). He/she informs them that they only have three minutes to complete the task, and that whoever finishes the puzzle first wins the game. The experimenter asks the children if they understand what they are supposed to do, after which he/she sets the timer and leaves the room to stand outside and wait until the children have completed the task.

Once these two tasks are completed, the experimenter debriefs the children, telling the nature and reasons for the tasks. He/she then gives the children a big box of "Legos" and lets them play together for five minutes. When the free play period has ended, the experimenter allows the children to return to their classrooms.

Appendix J

Children's Debriefing for the Actual Conflict Situations

Debriefing for Actual Conflict Scenarios.

I want to thank you for coming here today and playing these games for me. Your answers and your actions in these games will really help me learn more about how students your age behave in certain situations.

Remember when I came into your classroom and I asked you to fill out those surveys. Remember, when I told you that I wanted to find out what students your age thought about, and how your answers together with other children's would help me learn more about how you get along in school and what kind of problems children have. Well, today you were helping me with the same project. Today you were helping me find out how students your age act when they are faced with a problem. I hope the games you played today will help me answer this question.

Now before you go back to your classroom, I want to ask you to keep what we did here a surprise for your classmates. You see, all the other students (your friends) are going to come and play these games as well. We want to keep these games a surprise, so that they can have as much fun playing these games as you did. If you tell them what you did here today, then it will no longer be a surprise, and your friends may not have as much fun. So if we want your friends to also have fun, you can't tell them about it until everyone has played them too. That way we can all talk about the games together, later, when I come back to your classroom.

This is very important. Do you remember when I told you that everyone's answers are going to be private. That no one is going to be able to know what you said or did. Well, this is the same thing. If you tell the other students about these games, your answers are not going to be private because you will have told everyone else what you did. So if you don't tell, nobody else will know. When everyone else has finished playing these games, I'll come back to your classroom and tell everyone about the games, but not your answers.

Do you have any questions before you go back to your classroom ? (answer any questions that come up).

Once again, thanks for helping me.

Appendix K**Children's Debriefing for Complete Data Collection**

Debriefing for Completed Data Collection:
Program Schools

I have come back today to talk to you about all the forms you filled out and all the games you played for me.

Remember when I came to your classroom and I asked you to fill out all those surveys. Do you remember when I asked you to play all those games for me? Do you remember those games with the "legos"? I told you that I wanted to find out more about what students your age thought about and how you acted in certain situations. Remember, I told you how all your answers together with other children's answers would help me learn more about how you get along in school and the kinds of problems children face. Well, you're help with the surveys and the games will help me know more about how students your age think and act when they have a problem.

Your answers, are also going to help me learn more about the problem solving lessons you learned in class with your teacher. Do you remember those lessons? You know, where you learned the steps to problem solving, and the "traffic light" and how to tell someone how you are feeling by using "I feel" statements. That's right, you remember. Well, all those surveys and games, also helped me know more about those problem solving lessons, and how those lessons help students like you solve their own problems. This way, I can learn which lessons children like, and use when they are faced with a problem. With your answers and help, I will be able to know more about how students like you solve their own problems.

Are there any questions? (answer any that come up).

O.K. Before I go I want to thank you again for your help. Without you I would not be able to learn how students like you, solve their problems, so I'm really happy that you helped me.

Thank you.

Debriefing for Completed Data Collection
Comparison Schools

I have come back today to talk to you about all the forms you filled out and all the games you played for me.

Remember when I came to your classroom and I asked you to fill out all those surveys. Do you remember when I asked you to play all those games for me? Do you remember those games with the "legos"? I told you that I wanted to find out more about what students your age thought about and how you acted in certain situations. Remember, I told you how all your answers together with other children's answers would help me learn more about how you get along in school and the kinds of problems children face. Well, your help with the surveys and the games will help me know more about how students your age think and act when they have a problem.

Your answers, are also going to help me learn more about how children your age learn to solve their problems on their own. This is important, because some children in other schools are learning how to solve their problems through a special program. This way, I am going to take all those answers you gave me, put them together, and then compare them with those other children's answers. Your answers and those of other children like you, are going to help me learn how children learn to solve their problems on their own, and how we can help children learn to solve their own problems. This way, I can learn if children need to be taught how to solve their own problems, which lessons children like and need to learn, and how children behave they are faced with a problem. Thus, with you have helped me learn more about how children learn to solve their problems.

Are there any questions? (answer any that come up).

O.K. Before I go I want to thank you again for your help. Without you I would not be able to learn how students like you, solve their problems, so I'm really happy that you helped me.

Thank you.

Appendix L**Coding Scheme for Curriculum Acquired Skills**

Data coding for the behavioral videos.

In the provided grid please mark these letters in the appropriate sections (clarified in the body of the coding system).

Scene one: mis-information task. First subject is told to take books out of a box and put them on a table, while second subject is told to take books off the table and put them back in the box.

Scene two: limited resources task. Each subject is told to construct an identical "LEGO" puzzle, that has had some pieces removed. Missing pieces include: 1 tire from each puzzle, a helmet for one puzzle and a steering wheel from the other puzzle.

To be used for all the scenes:

Y = yes, subject performed the response.

N = no, the subject did not perform the response.

A = anger, to be coded under the *feelings* grid (both verbal and behavioral).

F = frustration, to be coded under the *feelings* grid (both verbal and behavioral).

S = smiling and laughing behaviour, to be coded under the *feelings* grid (both verbal and behavioral).

Fr = frowning, to be coded under the *feelings* grid (both verbal and behavioral).

H = helping other subject with the puzzle or books, to be coded under the *helping*

As = asking other for help with books or puzzle or asking for a needed piece of the puzzle, to be coded under the *helping* grid (verbal).

Sh = sharing information about own task and /or giving other student the pieces of the puzzle, to be coded under the *helping* grid (verbal and behavioral).

For purposes of this study, skills related to the specific curriculum of the conflict management program will be coded in the behavioral observations. Those skills include both verbal and non-verbal manifestations of acquired curriculum skills⁹.

1. Identifying the problem
2. Calming Down
3. Recognition and expression of feelings
4. Brainstorming (generation of alternative solutions to the problem situation)
5. Strategy implemented in resolution of problematic situation:
 - a) Compromise
 - b) Helping and sharing
 - c) Distraction
 - d) Taking Turns

Additional behaviours to be coded include verbal and nonverbal behaviours found to differentiate between "prosocial popular" children and "rejected" children as found in Vitaro & Pelletier (1989).

- e) Verbal and Physical Aggression
- f) Aggression

⁹

Please note that strategies E and F are not specifically mentioned in the curriculum. Instead these strategies were derived from those behaviours present on the inter-coder reliability training videos.

1- Identifying the problem

Verbal: Anything that denotes that Subject has noticed a problem with the scenario.

Hey what are you doing? (scene 1)

Why are you doing that (scene 1)

Are you supposed to do that? (scene 1)

Hey I'm missing this piece. (scene 2)

You have one of these, and I don't . (scene 2)

Are you supposed to do that? (scene 1)

Behaviour: Any overt movement or facial expression signifying that the subject(s) have noticed a problem.

The first subject stops task, steps back and looks at the second subject with a (wide-eyed) surprised look on his/her face (Scene 1).

The focal subject is grabbing books in other S's hand, as if trying to stop them from removing the books from the table (or box) (scene 1).

Pointing to the pieces, looking over both sets of game pieces, as if making an inventory list (scene 2).

Looking back and forth and touching pieces that are similar, stopping that action when realize missing piece, and then begins to search through all pieces again to make sure that it is missing (scene 2).

2 - Calming Down

Verbal:

The subject starts counting to "10" out loud.

The subject makes statements concerning the need for either or both of them to calm down before further negotiation.

Behaviour:

Stopping all discussion and turning away from other subject for a short period of time, before returning to problem discussion.

Taking several deep breaths.

Making a gesture indicating "hey stop for a minute"

Counting to 10 on one's fingers.

3 - Recognising other / Expressing one's feelings.

Verbal:

Using "I Talk" statements to express feelings.

"I talk"= "I feel ... When/Because you... I Want..."

"Having these missing pieces makes me mad."

Mention of any feeling in either a statement or question directed towards other subject, like "You look angry".

Asking the other subject directly "what are you feeling?"

Hearing "URGH!" as a signal of subjects frustration.

Coded as A for anger, S for smiling and laughing behaviour, F for frustration and confusion.

Behaviour:

Facial expressions denoting how subject is feeling.

Body Movements that express feelings: including making a fist and shaking

it (anger), raising both arms up in the air and shrugging shoulders (frustration and confusion), and smiling and laughing (happiness and amusement).

Coded as A for anger, S for smiling and laughing behaviour, F for frustration and confusion.

4 - Brainstorming: The generation of multiple alternative solutions. This should only be coded after the subjects have either verbally or behaviorally displayed at least two **different** strategies, with or without the presence of "Continuation of Task" or "Trial and Error" strategy. Please see the strategies section for a description of the potential strategies available.

Verbal:

any statement made that denotes a way to resolve the problem.

"We could both share the pieces" (compromise)

"We should be working together" (compromise).

"I'll finish mine then I'll help you" (helping)

"Let me see how you put it together, so I can do the same" (asking).

Behaviour:

Reaching over and showing pieces, how they go together, which ones go next.

Continuously trying to fit the pieces together until they get a "fit" (trial and error).

Picking up the box, turning it around trying to get a better idea as to how the pieces go together and how (looking intently at the box for more than 5 seconds.).

Waiting for the other person to finish the task, and then starting their own or

looking intently at other subjects' design (looking at other for more than 5 seconds).

Actually helping the other person with their task (helping).

5- Strategy Use

Verbal: Anything that sounds like a potential solution to the problem

Compromise: We could both share the pieces

We should be working together.

Helping and sharing: Asking for help from other person (A)

What is this for?/ How do I do this?

Do you have ...?/ Could I have...?

Behaviour:

a) **Compromise:** Reaching a mutually beneficial solution, that is a WIN/WIN arrangement has occurred (ex. agree to combine their puzzle pieces and complete only one of the puzzles before the five minutes, allotted for puzzle completion is up). Making a deal "Let me do this first, and then once I'm finished you can do yours. We could both put the books on the shelf first and then we'll both put the books in the box.

b) **Helping and sharing:** Other person shows pieces that are important or models their own set to the other person. One person reaches over and shows where/how correct pieces go; or even puts the pieces together for the other person. Giving the other person a much needed piece.

Coded as AS. for asking for help, SH for sharing information or pieces. and as H for

actually reaching over and helping the other student with task.

c) **Distraction:** Taking the other subject's mind of the current problem, by drawing their attention to another object or game in the "task" room.

d) **Taking Turns:** One puts one book on shelf (or in box) then the other one puts book on shelf (or in box) (almost simultaneously)

e) **Verbally Aggressive:** The subject clearly expresses to the other subject that s/he desires to have a change in the situation or else a negative consequence will befall the other subject. Also included in this variable are insults and negative critiques directed to the other subject.

If you don't give it to me, I'll tell the teacher.

You'd better give that to me, or else...

You idiot!

f) **Behavioural (Physical) aggression:** The subject uses physical force on the other subject in an effort to inflict harm.

The subject hits or punches the other subject.

g) **Aggressive acts on objects in the room:** The subject uses physical force to grab an object, yet makes no such overt action towards the other subject.

Grabs the much needed piece of puzzle.

Appendix M

School Climate Questionnaire

(Lam, 1989)

INSTRUCTIONS

This survey asks you to tell us about your school. For every statement below, please let us know whether you "Strongly agree," "Agree Somewhat," "Disagree Somewhat," or "Strongly Disagree." Circle the response that best describes how you feel about your school.

For example:

The main emphasis of our school is to develop creative independent thinkers.

Strongly Agree	Agree Somewhat	Disagree Somewhat	Strongly Disagree
-------------------	-------------------	----------------------	----------------------

1. Students have pride in our school.

Strongly Agree	Agree Somewhat	Disagree Somewhat	Strongly Disagree
-------------------	-------------------	----------------------	----------------------

2. Students have a lot of school spirit.

Strongly Agree	Agree Somewhat	Disagree Somewhat	Strongly Disagree
-------------------	-------------------	----------------------	----------------------

3. Teachers take students concerns seriously.

Strongly Agree	Agree Somewhat	Disagree Somewhat	Strongly Disagree
-------------------	-------------------	----------------------	----------------------

4. Students take part in solving their own problems in school and in the classroom.

Strongly Agree	Agree Somewhat	Disagree Somewhat	Strongly Disagree
-------------------	-------------------	----------------------	----------------------

5. Students cooperate with one another at school.

Strongly Agree	Agree Somewhat	Disagree Somewhat	Strongly Disagree
-------------------	-------------------	----------------------	----------------------

6. Students from different backgrounds and cultures respect each other at school.

Strongly Agree	Agree Somewhat	Disagree Somewhat	Strongly Disagree
-------------------	-------------------	----------------------	----------------------

7. Teachers spend too much time disciplining students.

Strongly Agree	Agree Somewhat	Disagree Somewhat	Strongly Disagree
-------------------	-------------------	----------------------	----------------------

8. Students are generally happy with the present discipline system.

Strongly Agree	Agree Somewhat	Disagree Somewhat	Strongly Disagree
-------------------	-------------------	----------------------	----------------------

9. Students know how to solve problems without getting into fights.

Strongly Agree	Agree Somewhat	Disagree Somewhat	Strongly Disagree
-------------------	-------------------	----------------------	----------------------

10. Students in our school really like school.

Strongly Agree	Agree Somewhat	Disagree Somewhat	Strongly Disagree
-------------------	-------------------	----------------------	----------------------

11. Students listen to both sides of the story when there is a problem between themselves.

Strongly Agree	Agree Somewhat	Disagree Somewhat	Strongly Disagree
-------------------	-------------------	----------------------	----------------------

12. Students can't really solve their own problems at school. They need help from an adult.

Strongly Agree	Agree Somewhat	Disagree Somewhat	Strongly Disagree
-------------------	-------------------	----------------------	----------------------

13. There are a lot of fights among students in our school.

Strongly Agree	Agree Somewhat	Disagree Somewhat	Strongly Disagree
-------------------	-------------------	----------------------	----------------------

14. Since the Social Problem Solving program started I have noticed a positive change in the school climate in general.

Strongly Agree	Agree Somewhat	Disagree Somewhat	Strongly Disagree
-------------------	-------------------	----------------------	----------------------

15. The Social Problem Solving program has had a positive impact on student/teacher relationships.

Strongly Agree	Agree Somewhat	Disagree Somewhat	Strongly Disagree
-------------------	-------------------	----------------------	----------------------

16. The Social Problem Solving program has had a positive impact on student/student relationships.

Strongly Agree	Agree Somewhat	Disagree Somewhat	Strongly Disagree
-------------------	-------------------	----------------------	----------------------

Appendix N

School Social Behavior Scales: Self-Management

(Merrell, 1993)

INSTRUCTIONS:

In this survey, you are asked to rate the student on each of the items on the following page. The rating points after each item appear in the following format:

Never	Sometimes			Frequently
1	2	3	4	5

Never If the student does not exhibit a specified behaviour, or if you have not had an opportunity to observe it, circle 1, which indicates *NEVER*.

Sometimes Circle the numbers 2, 3, or 4 (which indicates *Sometimes*) if the student exhibits these behaviours somewhere in between the two extreme rating points, based on your estimation of how frequently the specified behaviour occurs.

Frequently If the student exhibits a specified behaviour, circle 5, which indicates *Frequently*.

Please complete all the numbers.

1. Cooperates with other students in a variety of situations.

Never	Sometimes			Frequently
1	2	3	4	5

2. Gets into fights.

Never	Sometimes			Frequently
1	2	3	4	5

3. Shows self-restraint.

Never	Sometimes			Frequently
1	2	3	4	5

4. Follows classroom rules.

Never	Sometimes			Frequently
1	2	3	4	5

5. Will compromise with peers when appropriate.

Never	Sometimes			Frequently
1	2	3	4	5

6. Adjusts to different behavioral expectations across school settings.

Never	Sometimes			Frequently
1	2	3	4	5

7. Understands other students' problems and needs.

Never	Sometimes			Frequently
1	2	3	4	5

8. Teases and makes fun of other students.

Never	Sometimes			Frequently
1	2	3	4	5

9. Is sensitive to feelings of other students.

Never	Sometimes			Frequently
1	2	3	4	5

10. Behaves appropriately in a variety of school settings.

Never	Sometimes			Frequently
1	2	3	4	5

11. Disregards feelings and needs of other students.

Never	Sometimes			Frequently
1	2	3	4	5

12. Remains calm when problems arise.

Never	Sometimes			Frequently
1	2	3	4	5

13. Controls temper when angry.

Never	Sometimes			Frequently
1	2	3	4	5

14. Is accepting of other students.

Never	Sometimes			Frequently
1	2	3	4	5

15. Is a good listener.

Never	Sometimes			Frequently
1	2	3	4	5

16. Is open about expressing his/her feelings.

Never	Sometimes			Frequently
1	2	3	4	5

Appendix O**Teacher's Implementation/Utilization Questionnaire****("Children Learning For Living" Research committee, unpublished)**

INSTRUCTIONS:

Please assist us in the evaluation, by answering the following questions. These questions are asked so that information concerning the utilization of certain program components can be gathered. Your responses will aid us in determining which of the program components are the most likely to be used by the students and yourself, and their value to the program as a whole.

Your cooperation is greatly appreciated.

-
1. Are posters, displayed in a problem solving centre, easily accessible to the students.

2. Are the materials suitable for "calming" down and "working-out" deals such as paper, pens, storybooks, items of chance and relaxation tapes, in the problem solving centre?

3. Have you reviewed or retaught some of the lessons this year? If yes, please explain how?

4. Have you done any classroom "boosters" or reinforcement sheets this year? If yes, please explain how?

5. Have you dealt with real conflicts that have occurred in the classroom, by doing "role-play"?

Appendix P
Multivariate Analysis Tables

Table 9

Multivariate F Tests for School and Gender effects obtained for the CABS and SAAC total scores

IV	Multivariate F	df	p	η^2	Power
School	4.19**	2/35	.000	.99	1.00
Gender	2.24	2/35	.122	.11	.43
School X Gender	0.12	2/35	.884	.01	.07
Time	3.32**	4/144	.000	.09	.83
School X Time	2.84*	4/144	.027	.07	.76
Gender X Time	0.83	4/144	.502	.02	.26
School x Gender X Time	2.56	4/144	.069	.06	.64

* $p < .05$

* $p < .001$.

Table 11

Multivariate F Tests for School and Gender effects obtained for the CABS Passive and Aggressive factor scores.

IV	Multivariate F	df	p	η^2	Power
School	0.09	2/35	.910	.01	.06
Gender	1.57	2/35	.222	.08	.31
School X Gender	1.22	2/35	.307	.07	.25
Time	6.63**	4/142	.000	.16	.99
School X Time	3.39*	4/142	.011	.09	.84
Gender X Time	1.26	4/142	.287	.03	.39
School x Gender X Time	1.47	4/142	.215	.04	.45

* p < .05

** p < .001.

Table 14

Multivariate F Tests for School, Gender, and Grade effects obtained for the four factor scores of the SAAC.

IV	Multivariate F	df	α	p	η^2	Power
School	2.08	4/35	.05	.104	.19	.56
Gender	2.57	4/35	.05	.055	.23	.66
Grade	1.55	4/35	.05	.210	.15	.43
Time	156.44	8/146	.05	.000	.90	1.00
School X Time	1.48	8/146	.05	.170	.08	.65
Gender X Time	1.19	8/146	.05	.306	.06	.54
Grade X Time	1.95	8/146	.05	.057	.10	.79

Note: These results were obtained through three separate Manova analysis, therefore other 2 way and 3 way interactions were not available. These results were put into the same table for conciseness only.

Table 31

Multivariate F Tests for the factors on the School Social Behaviour Scales - Self-Management Skills.

IV	Multivariate F	df	α	p	η^2	Power
Program	2.44	6/194	.05	.027	.07	.82
Gender	3.57	3/96	.05	.017	.10	.77
Grade	3.55	3/96	.05	.017	.11	.32
Program X Gender	2.63	6/194	.05	.018	.08	.85
Program X Grade	3.06	6/194	.05	.107	.09	.75
Gender X Grade	0.55	3/96	.05	.649	.02	.16
Program X Gender X Grade	1.77	6/194	.05	.106	.05	.66

Appendix Q

Within Subjects Analysis: Replication Repeated Measures

This section presents results obtained through a Pre- Post- test design performed on data collected from grade 5 and 6 students receiving the program for the first time. These analysis attempted to replicate the Pre-Post design utilized in Astri (1996) in an effort to determine the consistency of results obtained from the first-time delivery of an intervention. As in the previous result sections, The Children's Assertive Behaviour Questionnaire and The Student's Attitudes Towards Conflict Scale were used to determine the efficacy of the intervention. Two cohorts are studied: 59 grade 5 and 6 students received the intervention, for the first time, in 1994-95 (Astri, 1996), whereas 60 grade 5 and 6 students received the intervention, for the first time, in 1995-96. For the first cohort, data was collected immediately before and six months after the intervention. For the second cohort, data was collected six months before and after the intervention. Thus, at pre-test, the second cohort was one year younger (ie. pre-tested in grades four and five) than they were when they actually received the program (ie. post-tested in grades five and six) : all students underwent the intervention when they were in grade five and six. Out of an original sample of 184 (Astri, 1996) and 148 (present study), 119 students produced data at pre-test while post-test data was obtained for only 94 students. Pre-test data, therefore, was available for 31 grade five and 28 grade six students in cohort one (N=59) and for 33 grade 5 and 27 grade six students in cohort two (N= 60). At post-test, available data for cohort one, was obtained from 31 grade five and 28 grade six (N=59), whereas available data for the second cohort was obtained from only 23 grade 5 and 12 grade 6 students (N=35). Thus all results discussed below were obtained on a sample of

94 students, as SPSS excluded 25 cases because of missing data. Data for second intervention and no intervention students were not used in the subsequent analysis. The analysis presented herein were obtained through several Manova analysis as singularity became problematic for some of the dependent variables. The independent variables utilized in these Pre-Post repeated measures analysis included: cohort, school, and grade. For these Manovas, the cohort variable was analyzed separately, whereas school and grade were analyzed together; school and cohort could be analyzed together as they produced redundancies in the analysis and statistics were not produced. Please note, results for potential gender differences were not analyzed as the majority of subjects for these analysis were boys (ie. only one grade six girl produced data).

Total Scores: CABS and SAAC (please see pp. 90-91 for a description)

A 2 (Time: Pre- Post- test) X 4 (School) X 2 (Grade: five and six) mixed between-repeated measures sequential Manova was performed on the total scores obtained on the CABS and SAAC questionnaires. School and Grade were the independent variables for the analysis, whereas Time was the within subjects variable. Within subjects analysis are presented first, followed by the results for the between subjects analysis.

Using Pillai's trace criterion, repeated measures results revealed that the combined Total scores were significantly affected by the within subjects variable Time, $F(2,85) = 8.58$, $p = .00$, $\eta^2 = .17$, Power = .96. Univariate tests revealed that both the CABS total score $F(1,86) = 11.97$, $p = .001$, $\eta^2 = .12$, Power = .93 and the SAAC total score $F(1,86) = 10.19$, $p = .002$, $\eta^2 = .11$, Power = .88, contributed to the multivariate effect. Pre- Post-test means show that the students, regardless of school and grade were more

assertive (CABS) and had better attitudes towards conflicts, skills and their use, self-esteem, and interpersonal relations (SAAC), before the intervention than they did after the intervention. None of the remaining 3-way and 2-way interactions with the within subjects variable Time were found to be significant ($p > .05$). Furthermore, when the between subjects results were perused, Pillai's criterion revealed no significant main effects (school, grade) or interactions (school X grade). Table 33 shows means and standard deviations obtained from the two questionnaires and Table 34 presents the details of the multivariate analysis.

Cohort effects on the two total scores were determined through a 2 (Time: Pre-Post-test) X 2 (Cohort: intervention received in '94-95, intervention received '95-96) repeated measures sequential Manova. Results revealed that the combined scores were significantly affected by the within subjects variable Time, $F(2,91) = 9.01$, $p = .000$, $\eta^2 = .17$, Power = .97. Univariate test revealed that both the CABS total score $F(1,92) = 12.29$, $p = .001$, $\eta^2 = .12$, Power = .93 and the SAAC total score $F(1,92) = 10.18$, $p = .002$, $\eta^2 = .10$, Power = .88 contributed to the significant multivariate effect. Thus, as in the previous analysis, students, regardless of which cohort they belonged to, were more assertive and had a more positive attitude before the intervention was implemented when compared to their mean total scores after the intervention was implemented (see Table 33).

Interestingly the Time X Cohort interaction was not significant, $F(2, 91) = 0.60$, $p = .549$, $\eta^2 = .01$, Power = .15, especially since between subjects analysis revealed that the main effect of cohort was marginally significant $F(2,91) = 3.27$, $p = .042$, $\eta^2 = .07$.

Table 33

Means and Standard Deviations obtained for the CABS Total and Factor scores and the SAAC Total scores

	Pre-test		Post-test	
	M	SD	M	SD
CABS Total Score	3.82	1.30	4.13	1.30
CABS Passive Factor	3.02	0.95	3.21	1.03
CABS Aggressive Factor	2.19	1.32	2.37	1.40
SAAC Total Score	93.36	11.15	90.64	13.19

Note: Means are based on a subject pool of 94 students.

Table 34

Multivariate F Tests for School, Time, and Grade effects obtained for the CABS and SAAC Total Scores

IV	Multivariate F	df	α	p	η^2	Power
School	1.37	6/172	.05	.227	.05	.53
Grade	2.48	2/85	.05	.090	.06	.49
Time	8.58**	2/85	.05	.000	.17	.96
School X Grade	0.15	6/172	.05	.989	.01	.10
School X Time	0.39	6/172	.05	.882	.01	.16
Grade X Time	2.08	2/85	.05	.132	.05	.42
School X Grade X Time	1.08	6/172	.05	.377	.04	.42

** p < .001.

Power = .61. Univariate tests revealed that the significant multivariate effect was found only through the combination of these two total scores; individually neither the CABS total score $F(1,92) = 0.23$, $p = .629$, $\eta^2 = .002$, Power = .05, nor the SAAC total score, $F(1,92) = 3.18$, $p = .077$, $\eta^2 = .03$, Power = .42, contributed to the multivariate effect.

Means obtained for the CABS revealed that when faced with a variety of conflict situations, the students in cohort one were more assertive ($M = 3.89$, $SD = 1.21$) than the students in cohort two ($M = 4.07$, $SD = 1.42$). Means obtained on the SAAC revealed that the students in cohort two displayed a more positive attitude towards conflict ($M = 94.10$, $SD = 26.69$) when compared to students in cohort one ($M = 90.58$, $SD = 11.21$).

Factor Scores: The CABS (please refer to pp. 95 for a description)

A 2 (Time: Pre- Post-test) X 4 (School) X 2 (Grade: Five and Six) mixed between-repeated measures sequential Manova was performed on the Passive and Aggressive factor scores obtained. School and Grade effects were the independent variables for the analysis, whereas Time was the within subjects variable. Within subjects analysis are reported first, followed by the results obtained for the between subjects analysis.

Using Pillai's trace criterion, repeated measures results revealed that the combined factor scores were significantly affected the within subjects variable, Time, $F(2,85) = 4.44$, $p = .015$, $\eta^2 = .10$, Power = .75. Univariate tests revealed that the Passive factor score, $F(1,86) = 5.15$, $p = .026$, $\eta^2 = .06$, Power = .61, contributed to the multivariate effect, whereas the Aggressive factor score did not, $F(1,86) = 3.39$, $p = .069$, $\eta^2 = .04$, Power = .44. Thus, students regardless of school or grade, approached conflict resolution

in a less passively ($\underline{M} = 3.02$, $\underline{SD} = 0.95$) before the intervention than they did after the intervention ($\underline{M} = 3.21$, $\underline{SD} = 1.03$). None of the remaining 3-way and 2-way interactions with the within subjects variable Time were found to be significant ($p > .05$). Furthermore, when the between subjects results were perused, Pillai's criterion revealed no significant main effects (school, grade) or interactions (school X grade). Table 33 presents means and standard deviations for the two CABS factor scores and Table 35 presents the details of the multivariate analysis.

Cohort effects on the two total scores were determined through a 2 (Time: Pre-Post-test) X 2 (Cohort: intervention received in '94-95, intervention received '95-96) repeated measures sequential Manova, performed on the two CABS factor scores: Passive and Aggressive. Results revealed that the combined scores were significantly affected by the within subjects variable Time, $\underline{F}(2,91) = 4.64$, $p = .012$, $\eta^2 = .10$, Power = .77. Univariate test revealed that the CABS Passive score $\underline{F}(1,92) = 5.31$, $p = .023$, $\eta^2 = .05$, Power = .62, contributed to the significant multivariate effect whereas the CABS Aggressive score, which approached significance, did not $\underline{F}(1,92) = 3.53$, $p = .064$, $\eta^2 = .04$, Power = .46. Thus, as in the previous analysis, students, regardless of which cohort they belonged to, approached conflict resolution more passively at pre-test than they did after the intervention. The Cohort by Time interaction was not significant, $\underline{F}(2, 91) = 1.26$, $p = .288$, $\eta^2 = .03$, Power = .27, nor was the main effect of cohort, $\underline{F}(2, 91) = 0.71$, $p = .495$, $\eta^2 = .02$, Power = .17.

Factor Scores: The SAAC (please refer to pp. 98 for a description)

To avoid singularity problems due to the small number of cases obtained per cell

Table 35

Multivariate F Tests for School, Grade, and Time effects obtained for the CABS Passive and Aggressive Factor Scores

IV	Multivariate F	df	α	p	η^2	Power
School	0.42	6/172	.05	.866	.01	.17
Grade	2.89	2/85	.05	.061	.06	.55
Time	4.44*	2/85	.05	.015	.10	.78
School X Grade	0.33	6/172	.05	.920	.01	.14
School X Time	0.61	6/172	.05	.726	.02	.24
Grade X Time	0.51	2/85	.05	.604	.01	.13
School X Grade X Time	0.53	6/172	.05	.783	.02	.21

** p < .05.

per dependent variables, school, cohort, and grade effects were analyzed through three separate Manova analysis. Below, the results for the effect of school are presented first, followed by the effect for grade and then by the effect for cohort.

A 2 (Time: Pre- Post-test) X 4 (School) mixed between-repeated measures sequential Manova was performed on the four SAAC factor scores obtained. School was the independent variable for the analysis, whereas Time was the within subjects variable. The results presented herein are based on the Wilk's Lambda multivariate test statistic. Repeated measures results revealed that the combined factor scores were significantly affected by the School by Time interaction, $F(12,230) = 3.88$, $p = .000$, $\eta^2 = .15$, Power = 1.00. Univariate tests revealed that the Conflict Resolution / Problem Solving factor score, $F(3, 90) = 14.20$, $p = .000$, $\eta^2 = .32$, Power = .99, contributed to the multivariate effect, whereas the other three factor scores did not: Attachment / Commitment to school environment, $F(3,90) = 0.93$, $p = .432$, $\eta^2 = .03$, Power = .25, Self Concept / Peer Relations, $F(3, 90) = 0.70$, $p = .556$, $\eta^2 = .02$, Power = .19; Perceptions of Social Skills / Social Relations, $F(3, 90) = 1.84$, $p = .146$, $\eta^2 = .06$, Power = .46. Figure 5 shows a graphical representation.

SAAC Conflict Resolution/ Problem Solving Factor score: School X Time Interaction

As seen in Figure 5, mean scores on the Conflict Resolution/Problem Solving skills factor revealed that at pre-test, students from school 1 displayed a more confident attitude when compared to their scores obtained six months after the intervention. Students in school 2 display a similar effect, where their pre-test scores are slightly higher than their post-test scores (ie. they are more confident in their problem solving skills

Figure 5 The Student's Attitudes Towards Conflict Scale: Conflict Resolution / Problem Solving Skills factor.

before the intervention). Thus, their confidence in their own problem solving skills decreased after having experienced the intervention. Students in school 3 and 4, however, were found to be more confident in their problem solving skills after they had received the intervention; their pre-test scores are lower than those obtained at post-test. Thus, obtained scores revealed an increase in the students' own confidence, concerning their problem solving skills, after they had received the intervention for six months. Overall, it appears that the students in school 4 have more confidence in their own problem solving abilities than any of the other students, whereas students in school 2 display the lowest amount of confidence. For instance, students in school 1 display more confidence in their problem solving ability than students in school 2 and yet, their scores at both points in time are lower than those obtained by students in school 3 and 4. Students in school 2 display the lowest amount of confidence in their abilities when compared to students in schools 1, 3, and 4, and students in school 3 appear to be more confident in their own problem solving abilities when compared to students in schools 1 and 2, but are less confident than students in school 4.

Simple effects analysis were conducted in an effort to determine, if the group means (ie. students in schools 1, 2, 3, and 4) at each point in time (ie. repeated measure: pre- post-test) were significantly different from each other. Given that there are two points in time, two comparisons were computed through the SPSS Manova program. Results from this 2 (Time: pre- post-test) X 4 (school) Manova revealed that the groups did not significantly differ from one another at pre-test, $F(12, 230) = 0.57, p = .867$. Significant differences between the four group means, however, occurred when scores on

the Conflict Resolution/Problem Solving Skills factor score were compared at post-test (six months after the intervention), $F(12, 230) = 5.53, p = .000$. Thus, post-test scores indicated that the students' confidence in their own problem solving ability, differed from each other, when differences between schools was compared.

Although the simple effects analysis determined that the groups differed from each other at post -test only, the results are still ambiguous as this test does not tell you which of the four groups differed from each other. In an effort to determine which of the groups are producing this significant result, six pair-wise, Bonferroni adjusted, comparisons¹⁰ were calculated through a one way Anova; the four schools were the independent variables and the post-test Conflict resolution /Problem Solving skills factor score was the dependent variable. Four of the six comparisons processed were found to be significant. At post-test, therefore, significant differences occurred between the means for school 1 and 3, school 1 and 4, school 2 and 3, and school 2 and 4. Students in schools 1 and 2, at post-test, reported feeling less confident in their problem solving abilities when compared to students in schools 3 and 4. When compared to each other, neither the comparison between school 1 and 2, nor the comparison between school 3 and 4 were found to be significant (details of the analysis are presented in Table 36). It appears that despite

¹⁰

SPSS one-way Anova is programmed to recognize these comparisons as Post Hoc. It therefore adjusts the critical $\bar{I}$ according to the number of comparisons being made. According to the printout, range statistic is first calculated and then it is inserted to the following formula, where the critical $\bar{I}$ is adjusted based on the n of each group. The formula provided by the printout for the adjustment is:

$\text{Mean}(J) - \text{Mean}(I) \geq 2.4836 * \text{Range} * \text{SQRT}(1/n(I) - 1/n(J))$, where the Range is calculated to be 3.82.

Table 36

Post Hoc Bonnferoni Pairwise Comparisons obtained on the second SAAC factor score:
School means, Standard Deviations, T-values, and Critical T values.

School	Mean scores averaged across pre and post-test data		
	M	SD	n
Conflict Resolution/ Problem Solving Skills*			
School #1	32.40	7.22	35
School #2	30.04	4.95	24
School #3	37.58	7.24	26
School #4	38.11	5.21	9
Comparisons			
	T value	Critical T	
Comparison # 1			
School 1 and School 2	2.36	(+/-) 4.68	
Comparison # 2			
School 1 and School 3	-5.18*	(+/-) 4.68	
Comparison # 3			
School 1 and School 4	-5.71	(+/-) 6.62	
Comparison # 4			
School 2 and School 3	-7.54*	(+/-) 5.00	
Comparison # 5			
School 2 and School 4	-8.07*	(+/-) 6.85	
Comparison # 6			
School 3 and School 4	-.053	(+/-) 6.85	

* p < .05.

Note: Adjusted Critical T value obtained through the following formula provided by SPSS: $\text{Mean (J)} - \text{Mean (I)} > \text{or} = \text{to } 4.6312 \times \text{Range} \times \text{Square root } (1/N_i + 1/N_j)$. The Range was calculated to be 3.82, and the overall familywise Alpha was set at .05.

having different means, the reported confidence levels of students in schools 1 and 2 and schools 3 and 4, did not differ from each other when compared on the SAAC Conflict resolution / Problem Solving Skills factor score.

Results from the repeated measures analysis also revealed that the combined scores were significantly affected by the within subjects variable Time, $F(4,87) = 4.25$, $p = .003$, $\eta^2 = .16$, Power = .91. Univariate tests revealed that the Attachment / Commitment to school environment, $F(1,90) = 10.04$, $p = .002$, $\eta^2 = .10$, Power = .88; contributed to the multivariate effect, whereas the other three factor scores did not: Conflict Resolution/ Problem Solving Skills, $F(1, 90) = 2.22$, $p = .140$, $\eta^2 = .02$, Power = .31; Self Concept / Peer Relations, $F(1, 90) = 1.92$, $p = .169$, $\eta^2 = .02$, Power = .28; Perceptions of Social Skills / Social Relations, $F(1, 90) = 0.82$, $p = .368$, $\eta^2 = .01$, Power = .17. Table 37 presents the means and standard deviations. Students, therefore, regardless of which school they belonged to, reported that they were more committed and attached to their school environment before the intervention was implemented ($M = 26.39$, $SD = 4.36$) than after having received the intervention ($M = 25.09$, $SD = 4.97$).

Between subjects results revealed that the combination of scores were significantly affected by School, when scores obtained on these four factor scores were averaged across the two time periods, $F(12, 230) = 2.20$, $p = .012$, $\eta^2 = .10$, Power = .90. As in the School by Time interaction described above, the Conflict Resolution / Problem Solving Skills factor score contributed to the significant multivariate effect, $F(3, 90) = 7.35$, $p = .000$, $\eta^2 = .20$, Power = .98, whereas the other three factor scores did not: Attachment / Commitment to school environment, $F(3,90) = 2.01$, $p = .119$, $\eta^2 = .06$, Power = .50; Self

Table 37

Means and Standard Deviations for the main effect of Time obtained for the four factor scores generated by the SAAC:

	Pre-test		Post-test	
	M	SD	M	SD
Attachment/ Commitment:				
	26.39*	4.36	25.09	4.97
Conflict Resolution/ Problem Solving Skills				
	16.80	3.53	17.13	4.34
Self Concept/ Peer Relations				
	30.07	3.81	30.00	4.14
Perceptions of Social Skills/ Social Relations				
	13.49	2.65	13.31	2.58

* $p < .001$

Notes: High scores indicate a more positive attitude and/or perception of self, skills, and interpersonal relations.

Attachment/ Commitment - Score range = 9-36

Conflict Resolution/ Problem Solving Skills - Score range = 7-28

Self Concept/ Peer Relations - Score range = 10-40

Perceptions of Social Skills/Social Relations Score range = 5-20.

Concept / Peer Relations, $F(3, 90) = 1.40$, $p = .249$, $\eta^2 = .04$, Power = .36: Perceptions of Social Skills / Social Relations, $F(3, 90) = 0.56$, $p = .643$, $\eta^2 = .02$, Power = .16. Table 38 presents the means and standard deviations. In an effort to determine which of the groups are producing this significant result, six pair-wise, Bonferroni adjusted, comparisons were calculated through a one way Anova; the four schools were the independent variables and the averaged score across the two time periods, obtained for the Conflict resolution / Problem Solving skills factor score, was the dependent variable. Three of the six comparisons processed were found to be significant. Significant differences occurred between the means for school 1 and 3, school 2 and 3, and school 2 and 4. Students in schools 1 and 2, at post-test, reported feeling less confident in their problem solving abilities when compared to students in schools 3 and 4 respectively. When compared to each other, neither the comparison between school 1 and 2, school 1 and 4, nor the comparison between school 3 and 4 were found to be significant (details of the analysis are presented in Table 39). It appears, that despite having different means, the reported confidence levels of students in schools 1 and 2, school 1 and 4, and schools 3 and 4, did not differ from each other when compared on the SAAC Conflict resolution / Problem Solving Skills factor score.

Cohort effects on the four SAAC factor scores were determined through a 2 (Time: Pre-Post-test) X 2 (Cohort: intervention received in '94-95, intervention received '95-96) repeated measures sequential Manova. Results revealed that the combined scores were significantly affected by the Cohort by Time interaction, $F(4, 89) = 10.79$, $p = .000$, $\eta^2 = .33$, Power = 1.00. Univariate tests revealed that the Conflict Resolution/ Problem

Table 38

Means and Standard Deviations for the main effect of School obtained for the four factor scores generated by the SAAC:

School	Pre-test		
	M	SD	n
Attachment/ Commitment:			
School #1	25.55	5.07	35
School #2	24.34	3.96	24
School #3	26.60	4.79	26
School #4	26.99	4.03	9
Conflict Resolution/ Problem Solving Skills *			
School #1	16.20	4.07	35
School #2	15.02	2.84	24
School #3	18.88	3.74	26
School #4	18.90	2.62	9
Self Concept/ Peer Relations			
School #1	20.10	4.06	35
School #2	29.29	4.26	24
School #3	30.27	3.86	26
School #4	31.08	2.93	9
Perceptions of Social Skills/ Social Relations			
School #1	13.33	2.63	35
School #2	13.09	2.03	24
School #3	13.70	2.99	26
School #4	13.53	2.57	9

* $p < .05$.

Notes: High scores indicate a more positive attitude and/or perception of self, skills, and interpersonal relations.

Attachment/ Commitment - Score range = 9-36

Conflict Resolution/ Problem Solving Skills - Score range = 7-28

Self Concept/ Peer Relations - Score range = 10-40

Perceptions of Social Skills/Social Relations Score range = 5-20.

Table 39

Post Hoc Bonnferoni Pairwise Comparisons obtained on the second SAAC factor score at Post-test: School means, Standard Deviations, T-values, and Critical T values.

School	Post-test		
	M	SD	n
Conflict Resolution/ Problem Solving Skills *			
School #1	15.63	3.69	35
School #2	14.46	2.75	24
School #3	20.38	4.07	26
School #4	20.67	2.74	9
Comparisons			
	T value	Critical T	
Comparison # 1 School 1 and School 2	1.17	(±/-) 2.51	
Comparison # 2 School 1 and School 3	4.75 *	(±/-) 2.51	
Comparison # 3 School 1 and School 4	5.04 *	(±/-) 3.55	
Comparison # 4 School 2 and School 3	-5.92 *	(±/-) 2.68	
Comparison # 5 School 2 and School 4	-6.21 *	(±/-) 3.60	
Comparison # 6 School 3 and School 4	-0.29	(±/-) 3.60	

* p < .05.

Note: Adjusted Critical T value obtained through the following formula provided by SPSS: $\text{Mean (J)} - \text{Mean (I)} > \text{or } = \text{to } 4.6312 \times \text{Range} \times \text{Square root } (1/N_I - 1/N_J)$. The Range was calculated to be 3.82, and the overall familywise Alpha was set at .05.

Solving Skills factor score, $F(1, 92) = 43.54$, $p = .000$, $\eta^2 = .32$, Power = 1.00, contributed to the multivariate effect, whereas the other three factor scores did not: Attachment / Commitment to school environment, $F(1, 92) = 0.91$, $p = .343$, $\eta^2 = .01$, Power = .17; Self Concept / Peer Relations, $F(1, 92) = 1.60$, $p = .209$, $\eta^2 = .02$, Power = .24; Perceptions of Social Skills / Social Relations, $F(1, 92) = 0.37$, $p = .545$, $\eta^2 = .004$, Power = .05. Figure 6 shows a graphical representation.

SAAC Conflict Resolution/ Problem Solving Factor score: Cohort X Time Interaction

As seen in Figure 6, mean scores on the Conflict Resolution/Problem Solving skills factor revealed that at pre-test, students from cohort 1 displayed a more confident attitude when compared to their scores obtained six months after the intervention. When pre-to post-test scores were compared for students in cohort 2, however, a different trend emerged. Students in cohort 2 reported feeling more confident in their own problem solving abilities at post-test. Thus, their confidence increased after having experienced the intervention. Furthermore, when pre-test scores for the two cohorts are examined, we find that the students in cohort 1 reported feeling less confident in their problem solving skills when compared to the self-reported scores of students in cohort 2. Similarly, when post-test scores were examined, Cohort 1 students were less confident than cohort 2 students. These results tie in well with those obtained for the school by time interaction described above; cohort 1 consisted of students in schools 1 and 2, whereas cohort 2 consisted of students in schools 3 and 4. As described above, it was students in cohort 1 (schools 1 and 2) that were found to be less confident in their abilities, at post-test, when compared to cohort 2 (schools 3 and 4).

Figure 6 The Student's Attitude Towards Conflict Scale:
Conflict Resolution / Problem Solving Skills factor score.

Results from the repeated measures analysis also revealed that the combined scores were significantly affected by the within subjects variable Time, $F(4, 89) = 4.30$, $p = .003$, $\eta^2 = .16$, Power = .92. Univariate tests revealed that the Attachment / Commitment to school environment, $F(1, 92) = 10.05$, $p = .002$, $\eta^2 = .10$, Power = .88; contributed to the multivariate effect, whereas the other three factor scores did not: Conflict Resolution / Problem Solving Skills, $F(1, 92) = 2.27$, $p = .135$, $\eta^2 = .02$, Power = .32; Self Concept / Peer Relations, $F(1, 92) = 1.95$, $p = .166$, $\eta^2 = .02$, Power = .28; Perceptions of Social Skills / Social Relations, $F(1, 92) = 0.79$, $p = .376$, $\eta^2 = .01$, Power = .17. Students, therefore, regardless of which cohort they belonged to, reported that they were more committed and attached to their school environment before the intervention was implemented ($M = 26.38$, $SD = 4.34$) than after having received the intervention ($M = 25.37$, $SD = 4.93$).

Between subjects results revealed that the combination of scores were significantly affected by Cohort, when scores obtained on these four factor scores were averaged across the two time periods, $F(4, 89) = 5.79$, $p = .000$, $\eta^2 = .21$, Power = .98. As in the Cohort by Time interaction described above, the Conflict Resolution / Problem Solving Skills factor score contributed to the significant multivariate effect, $F(1, 92) = 20.18$, $p = .000$, $\eta^2 = .18$, Power = .99, whereas the other three factor scores did not: Attachment / Commitment to school environment, $F(1, 92) = 3.94$, $p = .060$, $\eta^2 = .04$, Power = .50; Self Concept / Peer Relations, $F(1, 92) = 2.45$, $p = .121$, $\eta^2 = .03$, Power = .34; Perceptions of Social Skills / Social Relations, $F(1, 92) = 1.45$, $p = .231$, $\eta^2 = .02$, Power = .22. Table 40 presents the means and standard deviations. Students in cohort 1

Table 40

Means and Standard Deviations for the main effect of Cohort obtained for the four factor scores generated by the SAAC:

Cohort	Pre-test	
	M	SD
Attachment/ Commitment:		
Cohort #1	25.28	4.67
Cohort #2	26.70	4.61
Conflict Resolution/ Problem Solving Skills		
Cohort #1	15.72	3.60
Cohort #2	18.88	3.45
Self Concept/ Peer Relations		
Cohort #1	29.81	4.13
Cohort #2	30.48	3.69
Perceptions of Social Skills/ Social Relations		
Cohort #1	13.33	2.41
Cohort #2	13.66	2.89

* p < .001.

Notes: Cohort 1 - N= 59 and Cohort 2 - N= 60 at Pre-test. Cohort 1 - N= 59 and Cohort 2 - N=35 at Post-test.

High scores indicate a more positive attitude and/or perception of self, skills, and interpersonal relations.

Attachment/ Commitment - Score range = 9-36

Conflict Resolution/ Problem Solving Skills - Score range = 7-28

Self Concept/ Peer Relations - Score range = 10-40

Perceptions of Social Skills/Social Relations Score range = 5-20.

reported feeling less confident in their problem solving abilities when compared to cohort 2's reported scores.

Grade effects on the four SAAC factor scores were determined through a 2 (Time: Pre-Post-test) X 2 (Grade: five and six) repeated measures sequential Manova. Results revealed that the combined scores were significantly affected by the within subjects variable Time, $F(4, 89) = 4.01$, $p = .005$, $\eta^2 = .15$, Power = .90. Univariate tests revealed that the Attachment / Commitment to school environment, $F(1, 92) = 10.03$, $p = .002$, $\eta^2 = .10$, Power = .88; contributed to the multivariate effect, whereas the other three factor scores did not: Conflict Resolution/ Problem Solving Skills, $F(1, 92) = 1.55$, $p = .217$, $\eta^2 = .02$, Power = .23; Self Concept / Peer Relations, $F(1, 92) = 1.98$, $p = .162$, $\eta^2 = .02$, Power = .29; Perceptions of Social Skills / Social Relations, $F(1, 92) = 0.79$, $p = .376$, $\eta^2 = .01$, Power = .17. Students, therefore, regardless of which grade they belonged to, reported that they were more committed and attached to their school environment before the intervention was implemented ($M = 26.40$, $SD = 4.39$) than after having received the intervention ($M = 25.03$, $SD = 5.04$).

Between subjects results revealed that the combination of scores were not significantly affected by Grade, when scores obtained on these four factor scores were averaged across the two time periods, $F(4, 89) = 1.25$, $p = .296$, $\eta^2 = .05$, Power = .38. Despite differences in obtained means, grade five and six students did not differ from each other in their attitudes and confidence regarding their attachment to school, their problem solving abilities, their interpersonal relationships, and in their self-concept.

Summary of Within Subjects Results: Repeated Measures Replication

This summary attempts to present a synopsis of the results obtained through a Pre-Post-test Multivariate Analysis of Variance design performed on data collected from grade 5 and 6 students receiving the program curriculum for the first time. These analysis attempted to replicate the Pre-Post design utilized in Astri (1996) in an effort to determine the consistency of results obtained from the first time delivery of an intervention.

Obtained responses on the CABS total score were significantly influenced by the repeated measures variable, Time of testing (Pre- immediately before intervention; Post- six months after intervention). Pre-post means indicated that the students, regardless of school attended and grade, were more assertive at pre-test, then they were at post-test. Thus, exposure to the program did not produce sufficient changes in the students' cognitive problem solving abilities to warrant any significant differences between the four schools.

Results obtained for the students' Passive and Aggressive scores, lends to the speculation that the above results could have been influenced by the CABS Passive and Aggressive factor scores. For instance, the Passive factor was found to significantly contribute to the main effect of Time. Students, regardless of school attended or grade, were found to have responded in a less passive (therefore more assertive) manner at Pre-test. When Post-test scores were compared, we find that the students responded in a more passive (therefore less assertive) manner.

Interestingly, although no school effects were found, a main effect of Cohort was found to be significant. When mean scores for the CABS total score are perused, we find that students in Cohort 1 were more assertive than Cohort 2 students. Unfortunately,

when the Passive and Aggressive factor scores were compared, no significant differences were found between the two cohorts studied. Thus, any possible influences due to these two factor scores were not interpretable.

Obtained responses on the SAAC total score were significantly influenced by the repeated measures variable, Time of testing (Pre- immediately before intervention; Post- six months after intervention). Pre-post means indicated that the students, regardless of school attended or grade, had better overall attitudes towards conflict before the intervention when compared to their scores obtained after the intervention.

Results obtained for the SAAC factor scores provide a more complex picture. For instance, a significant interaction of school by time indicated that the only factor to have contributed to the effect was the Conflict Resolution / Problem Solving factor score. Here, we find that the students in schools 1 and 2 perceived themselves as having better problem solving skills at pre-test, when compared to their scores at post-test. Interestingly, a reverse trend is noticed when the means of schools 3 and 4 are perused. Students in these two schools perceived themselves as having better problem solving skills after having received the intervention. When all four schools are compared to each other, we find that school 4 had the highest scores, and school 2 had the lowest scores. Students in school 1 had better problem solving skills than students in school 2, yet these same students had poorer problem solving skills than either school 3 or school 4. Students in school 3 had better problem solving skills than students in schools 1 and 2, yet these same students had poorer problem solving skills than students in school 4. Simple effects analysis established that the differences between the four groups were only significant at

Post-test, whereas post-hoc pair-wise comparisons revealed that significant group mean differences were between schools 1 and 3, schools 1 and 4, schools 2 and 3, and schools 2 and 4. Thus, as stated above, students in schools 1 and 2 had a poorer perception of their problem solving skills when compared to students in schools 3 and 4.

The significant interaction of Cohort by Time offers us a better, more parsimonious explanation of the above effects. In the present research, cohort one consisted of those students in schools 1 and 2, whereas cohort two consisted of those students in schools 3 and 4. Thus, given the cohort by time interaction, means reveal that students in cohort 1 perceived themselves as having better problem solving skills at pre-test, when compared to their scores at post-test. Interestingly, a reverse trend is noticed when the means of schools 3 and 4 are perused. Furthermore, when the two cohorts are compared to each other, we find that cohort 2 students perceived themselves as having better problem solving skills at both points in time (pre-test, post-test) when compared to the self-perceptions of cohort 1 students.

Interestingly, when the main effect of time was found to be significant, it was another factor score altogether, that contributed to this particular effect. It seems that when only the repeated measure is looked at, the Attachment/ Commitment to the school environment factor that actually contributes to this effect. Thus students, regardless of school attended or grade, were found to be more attached or committed to their school environment before they had received the intervention. As suggested earlier, the results obtained from the analysis on the SAAC factor scores are complex, making it difficult to decipher how exactly they impact on the results obtained for the SAAC total score.

Appendix R**Observed /Expected Frequency Tables for Behavioural Simulations**

Frequency (and Percentages) of observed Problem Solving Behaviour

Event Program Level	<u>Mis-Information</u>		<u>Limited Resource</u>	
	Presence	Absence	Presence	Absence
Problem Identification				
Second Year	23 (65.7%)	12 (34.3%)	35 (100.0%)	0 (0)
First Year	29 (93.5%)	2 (6.5%)	35 (100.0%)	0 (0)
Comparison	47 (85.5%)	8 (14.5%)	55 (100.0%)	0 (0)
Whole Population	99 (81.8%)	22 (18.2%)	125 (100.0%)	0 (0)
Expression of Feelings				
Second Year	20 (57.1%)	15 (42.9%)	13 (37.1%)	22 (62.9%)
First Year	21 (67.7%)	10 (32.3%)	17 (48.6%)	18 (51.4%)
Comparison	33 (60.0%)	22 (40.0%)	28 (58.9%)	27 (49.1%)
Whole Population	74 (61.2%)	47 (38.8%)	58 (46.4%)	67 (53.6%)
Brainstorming				
Second Year	7 (20.0%)	28 (80.0%)	33 (94.3%)	2 (5.7%)
First Year	9 (29.0%)	22 (71.0%)	32 (91.4%)	2 (8.6%)
Comparison	16 (29.1%)	39 (70.9%)	52 (94.7%)	3 (5.3%)
Whole Population	32 (26.4%)	89 (73.6%)	117 (93.7%)	8 (6.3%)
Verbal Compromise				
Second Year	5 (14.3%)	30 (85.7%)	6 (17.1%)	29 (17.1%)
First Year	4 (12.9%)	27 (87.1%)	10 (28.6%)	25 (71.4%)
Comparison	5 (90.9%)	50 (90.9%)	11 (20.0%)	44 (80.0%)
Whole Population	14 (11.6%)	107 (88.4%)	27 (21.6%)	98 (78.4%)

Frequency (and Percentages) of observed Problem Solving Behaviour (contd.)

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Event Program Level	<u>Mis-Information</u>		<u>Limited Resource</u>	
	Presence	Absence	Presence	Absence
Behavioural Compromise				
Second Year	5 (14.3%)	30 (85.7%)	0 (0)	35 (100%)
First Year	4 (12.9%)	27 (87.1%)	5 (14.3%)	30 (88.7%)
Comparison	14 (25.5%)	41 (74.5%)	4 (7.3%)	51 (92.7%)
Whole Population	23 (19.0%)	98 (81.0%)	9 (7.2%)	116 (92.8%)
Helping Behaviour				
Second Year	3 (8.6%)	32 (91.4%)	24 (68.6%)	11 (31.4%)
First Year	2 (6.5%)	29 (93.5%)	23 (65.7%)	12 (34.3%)
Comparison	15 (27.3%)	40 (72.7%)	46 (83.6%)	9 (16.4%)
Whole Population	20 (16.5%)	101 (83.5%)	93 (74.4%)	32 (25.6%)
Aggression				
Second Year	2 (5.7%)	33 (94.3%)	3 (8.6%)	32 (91.4%)
First Year	4 (12.9%)	27 (87.1%)	3 (8.6%)	32 (91.4%)
Comparison	0 (0%)	55 (100%)	8 (14.6%)	47 (85.5%)
Whole Population	6 (5.0%)	115 (95.0%)	14 (11.2%)	111 (88.8%)
Aggression on Objects				
Second Year	0 (0%)	35 (100%)	1 (2.9%)	34 (97.1%)
First Year	4 (9.1%)	27 (87.1%)	2 (5.7%)	33 (94.3%)
Comparison	5 (9.1%)	50 (90.9%)	2 (3.6%)	53 (96.4%)
Whole Population	9 (7.4%)	112 (92.6%)	5 (4.0%)	120 (96.0%)

Notes: Second Year group comprised of 35 students for both simulations.
First Year group comprised of 31 students for the first simulation and 35 for the second simulation.
Comparison group comprised of 55 students for both simulations.

Table 17

Observed, Expected Frequencies and Residuals of Problem Identification Behaviour

Factor	OBS. count & PCT.	EXP. count & PCT.	Std. Residual
Problem Identification Behaviour has occurred			
Second year			
boy	5.00 (4.13)	5.74 (4.75)	-.1740
girl	7.00 (5.79)	4.63 (3.82)	.6299
First year			
boy	1.00 (.83)	3.65 (3.02)	-1.0313
girl	1.00 (.83)	2.94 (2.43)	-.1398
Comparison			
boy	6.00 (4.96)	2.79 (2.30)	.9810
girl	2.00 (1.65)	2.25 (1.86)	-.2799

Problem Identification Behaviour has not occurred

Second year			
boy	9.00 (7.44)	9.54 (7.88)	-.3098
girl	14.00 (11.57)	11.83 (9.78)	1.1025
First Year			
boy	11.00 (9.09)	14.99 (12.39)	-1.3879
girl	18.00 (14.88)	18.60 (15.37)	-1.1330
Comparison			
boy	24.00 (19.83)	19.65 (16.24)	1.9247
girl	23.00 (19.01)	24.38 (20.15)	-.1642

Table 20

Observed, Expected Frequencies and Residuals of Brainstorming Behaviour (mis-information-task interruption).

Factor	OBS. count & PCT.	EXP. count & PCT.	Std. Residual
Brainstorming has occurred			
Second Year			
boy	3.00 (2.48)	6.24 (5.16)	-1.4046
girl	4.00 (3.31)	3.83 (3.16)	- .0274
First Year			
boy	6.00 (4.96)	7.65 (6.32)	- .2378
girl	3.00 (2.48)	4.69 (3.88)	- .5240
Comparison			
boy	12.00 (9.92)	5.95 (4.91)	2 .0956
girl	4.00 (3.31)	3.65 (3.01)	- .0274
Brainstorming has not occurred			
Second Year			
boy	11.00 (9.09)	11.81 (9.76)	- .0829
girl	17.00 (14.05)	19.26 (15.91)	- .3238
First Year			
boy	6.00 (4.96)	9.63 (7.96)	-1.5717
girl	16.00 (13.22)	15.71 (12.98)	- .5570
Comparison			
boy	18.00 (14.88)	12.39 (10.24)	2.0015
girl	21.00 (17.36)	20.20 (16.70)	.6090

Table 23

Observed, Expected Frequencies and Residuals of Students' Helping Behaviour (Mis-information -task-interruption)

Factor	OBS. count & PCT.	EXP. count & PCT.	Std. Residual
Helping behaviour has occurred			
Second Year			
boy	9.00 (7.44)	10.59 (8.75)	- .4879
girl	6.00 (4.96)	10.59 (8.75)	-1.4099
First Year			
boy	1.00 (0.83)	9.59 (7.92)	-2.7734
girl	2.00 (1.65)	9.59 (7.92)	-2.4504
Comparison			
boy	0.00 (0.00)	10.08 (8.33)	-3.1741
girl	2.00 (1.65)	10.08 (8.33)	-2.5440
Helping behaviour has not occurred			
Second Year			
boy	21.00 (17.36)	9.59 (7.92)	3.6858
girl	19.00 (15.70)	9.59 (7.92)	3.0399
First Year			
boy	13.00 (10.74)	10.59 (8.75)	.7414
girl	19.00 (15.70)	10.59 (8.75)	2.5854
Comparison			
boy	12.00 (9.92)	10.08 (8.33)	.6064
girl	17.00 (14.05)	10.08 (8.33)	2.1817

Table 26

Observed, Expected Frequencies and Residuals of Suggested Verbal Compromise (mis-information - task interruption).

Factor	OBS. count & PCT.	EXP. count & PCT.	Std. Residual
Suggested Verbal Compromise has occurred			
Second Year			
boy	2.00 (1.65)	2.80 (2.31)	- .4784
girl	3.00 (2.48)	2.41 (1.99)	.3780
First Year			
boy	2.00 (1.65)	2.97 (2.45)	- .5613
girl	2.00 (1.65)	2.56 (2.11)	- .3477
Comparison			
boy	3.00 (2.48)	1.75 (1.45)	.9416
girl	2.00 (1.65)	1.51 (1.25)	.3983
Suggested Verbal Compromise has not occurred			
Second Year			
boy	12.00 (9.92)	13.98 (11.56)	- .5303
girl	18.00 (14.88)	16.23 (13.41)	.4392
First Year			
boy	10.00 (8.26)	13.20 (10.91)	- .8809
girl	17.00 (14.05)	15.32 (12.66)	.4287
Comparison			
boy	27.00 (22.31)	22.34 (18.46)	.9866
girl	23.00 (19.01)	25.93 (21.43)	- .5748

Table 27

Observed, Expected Frequencies and Residuals of Suggested Verbal Compromise (limited resource task)

Factor	OBS. count & PCT.	EXP. count & PCT.	Std. Residual
Suggested Verbal Compromise has occurred			
Second Year			
boy	3.00 (2.40)	4.57 (3.66)	- .7342
girl	3.00 (2.40)	4.36 (3.48)	- .6494
Year			
boy	5.00 (4.00)	5.62 (4.49)	- .2604
girl	5.00 (4.00)	5.35 (4.28)	- .1529
Comparison			
boy	5.00 (4.00)	3.64 (2.91)	.7144
girl	6.00 (4.80)	3.47 (2.77)	1.3604
Suggested Verbal Compromise has not occurred			
Second Year			
boy	11.00 (8.80)	15.58 (12.46)	-1.1602
girl	18.00 (14.40)	16.35 (13.08)	.4092
First Year			
boy	11.00 (8.80)	12.67 (10.14)	- .4702
girl	14.00 (11.20)	13.30 (10.64)	.1928
Comparison			
boy	25.00 (20.00)	19.57 (15.66)	1.2272
girl	19.00 (15.20)	20.53 (16.43)	- .3384

Table 28

Observed, Expected Frequencies and Residuals of Students' Expression of Feelings (Mis-information - task interruption)

Factor	OBS. count & PCT.	EXP. count & PCT.	Std. Residual
Expression of Feelings has occurred			
Second Year			
boy	5.00 (4.13)	9.02 (7.46)	-1.3390
girl	15.00 (12.40)	12.38 (10.23)	.7437
First Year			
boy	7.00 (5.79)	7.99 (6.60)	-.3505
girl	14.00 (11.57)	10.97 (9.06)	.9156
Comparison			
boy	18.00 (14.88)	14.18 (11.72)	1.0152
girl	15.00 (12.40)	19.46 (16.08)	-1.0108
Expression of Feelings has not occurred			
Second Year			
boy	9.00 (7.44)	7.86 (6.50)	.4048
girl	6.00 (4.96)	5.73 (4.74)	.1127
First Year			
boy	5.00 (4.13)	6.97 (5.76)	-.7449
girl	5.00 (4.13)	5.08 (4.19)	-.0334
Comparison			
boy	12.00 (9.92)	12.36 (10.21)	-.1022
girl	10.00 (8.26)	9.00 (7.44)	.3317

Table 29

Observed, Expected Frequencies and Residuals of Students' Expression of Feelings
(limited resource task)

Factor	OBS. count & PCT.	EXP. count & PCT.	Std. Residual
Expression of Feelings has occurred			
Second Year			
boy	3.00 (2.40)	8.93 (7.14)	-1.9928
girl	10.00 (8.00)	7.73 (6.18)	.3447
First Year			
boy	9.00 (7.20)	10.81 (8.65)	-.5676
girl	8.00 (6.40)	9.36 (7.49)	-.8709
Comparison			
boy	18.00 (14.40)	11.35 (9.08)	1.9519
girl	10.00 (8.00)	9.82 (7.86)	-.4167
Expression of Feelings has not occurred			
Second Year			
boy	11.00 (8.80)	11.90 (9.52)	-.2803
girl	11.00 (8.80)	13.75 (11.00)	-.2803
First Year			
boy	7.00 (5.60)	9.82 (7.86)	-.9146
girl	11.00 (8.80)	11.35 (9.08)	.3584
Comparison			
boy	12.00 (9.60)	9.36 (7.49)	.8444
girl	15.00 (12.00)	10.81 (8.65)	1.8224