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PREVENTIVE SOCIAL PROBLEM SOLVING WITH CHILDREN: EVALUATION AND

PREDICTION OF OUTCOME

by

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Preventive Social Problem Solving with Children: Evaluation and
Prediction of Outcome

A child's ability to form relationships and resolve
conflicts with peers has been recognized as an important
correlate of current and future adjustment. Primary preventive
interventions designed to enhance social competence have been
promising but have been hampered by methodological problems and
inconsistent findings.

The current research represents an attempt to remedy some of
these difficulties. 211 Grades three and four students within
the regular school system were assigned to either a
non-treatment control or a treatment condition consisting of
forty-two sessions of training in social problem solving.
Outcome variables consisted of observational measures completed
by teachers, parental ratings and self-reported problem-solving
skills, anxiety, social self-efficacy and assertiveness. It
should be noted that the latter two measures have not been
included in prior evaluations of social problem solving despite
empirical indications of their relevance. In order to facilitate
interpretation of findings, pre-treatment scores on the
twenty-one variables were subjected to a principle components
factor analysis. This resulted in a seven factor solution with
variables tending to cluster as a function of the source of
assessment (e.g., teacher versus parent) and the underlying

variable construct (e.g., affective state versus observed behaviour.) Factor change scores were used in subsequent analyses of intervention effectiveness.

Children receiving social problem solving demonstrated significant improvement in comparison with controls on the following factors: Aggression, Social Anxiety, Observed Home Adjustment and Social Confidence. Group differences were not evident for factors reflecting teacher ratings of competence or acting out, a finding tentatively attributed to variability between classrooms. Lastly, regression equations were calculated separately for control and treatment conditions in order to determine those pre-treatment factors which best predicted outcome. Statistical comparison of the resulting regression equations failed to reveal significant differences between the treatment versus control conditions and between the pooled conditions versus the entire sample irrespective of experimental condition. Determination of those factors which best predicted outcome were therefore calculated for the entire sample.

Collectively, these findings were interpreted as supporting and extending claims as to the utility of social problem solving as a primary preventive strategy. It was suggested that future research emphasize multidimensional assessment, comparisons between and within treatments and clarification of the individual subject characteristics which best determine intervention outcome.

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TABLE OF CONTENTS

LIST OF TABLES

CHAPTER I

INTRODUCTION

The Importance of Children's Social Competence

The last decade has seen a geometric increase in research focusing on children's abilities to form mutually satisfactory relations with their peers and to effectively cope with interpersonal difficulties (Michelson, Sugai, Wood and Kazdin, 1983). This interest is in contrast with the virtual neglect of social relationships in childhood which characterized the clinical and experimental literature for the preceding twenty-five years. Hops and Greenwood (1981) have attributed this inattention to the primacy of psychoanalytic and Piagetian theorizing which stressed the critical role of adult-child rather than of child-child relations for adequate development.

There are several reasons for the current interest in children's interpersonal interactions. First, a child's lack of acceptance by peers is a significant problem in itself. Asher and Renshaw (1981) have estimated that between five and ten per cent of school-aged children have no friends within their classroom. Sociometric status or popularity is related to children's concurrent emotional and cognitive development as well as their capacity to cope with stressful life events (Cowen, Lotyczewski & Weissberg, 1984). Examinations of children's social networks have revealed that popular children,

relative to their less popular agemates, have higher self-esteem (Percell, Berwick and Beigel, 1974), achieve better grades (Cobb, 1972), and are rated by their peers as possessing more positive personal characteristics (Gronlund and Anderson, 1957). and having 'expertise' in some area of functioning (Strain & Kerr, 1981).

Conversely, unpopular children frequently have an adverse relationship with their social environment, thereby receiving less positive and more negative attention from both peers and teachers (Cartledge and Milburn, 1978; Gottman, Gonso And Rasmussen, 1975). As Combs and Slaby (1977) have pointed out, the exhibition of socially inappropriate behaviour may set a vicious cycle into motion. The child who is aggressive is likely to be rebuffed by peers, leading to retaliatory behaviour on the part of the child, and ultimately resulting in generalized unpopularity. The socially anxious and withdrawn child is frequently unable to initiate interactions with peers, and may be unresponsive to the approach behaviours of others, thus extinguishing future interactive efforts and resulting in isolation and neglect. Such experiences serve to consolidate low status and deprive the child of the opportunity to learn, practice and receive reinforcement for socially competent behaviour. In addition, there is evidence that peer status may become increasingly entrenched as children grow older. Asarnow (1983) performed a sequential analysis of children's social behaviours at grades four and six. Children at both grade levels

responded to aggressive or inappropriate overtures by their unpopular peers with rejection. In the younger children a subsequent appropriate approach behaviour typically met with acceptance. This was not true for older unpopular children for whom even subsequent positive efforts failed. Such experiences may set the stage for further personal and interpersonal difficulties.

A second reason for the current interest in social competence is recognition that a wide range of psychological and physical disorders is closely linked with social maladjustment and alienation. The socially alienated child or adolescent may become involved in fringe groups engaged in delinquent activities including drug and alcohol abuse, petty theft and vandalism (Freedman, Rosenthal, Donahoe, Schlundt & McFall, 1978). Social incompetence is also associated with psychopathology. Rinn and Markle (1979) noted that eighty-seven per cent of the children admitted to a comprehensive mental health center were exhibiting social behavioural problems. More specifically, interpersonal difficulties are associated with such diagnostic categories as depression (Helsel & Matson, 1984), suicide (Stengel, 1971), attention deficit disorder (McGee, Williams & Silva, 1985), abuse and family distress, (Wolfe & Mosk, 1983), and avoidant disorders of childhood (DSM III, 1980). Children with neurological, physical and sensory deficits often experience peer rejection. This has been documented with populations such as the mentally retarded

3

(Gottlieb, Semmel & Veldman, 1978), hearing impaired (Smith, Schloss & Schloss, 1984), learning disabled (La Greca & Mesibov, 1979) and multiple physically handicapped (Croft, 1984). Clearly, social incompetence is not causal, or perhaps even primary, in the multitude of disorders experienced by children. Rather, it is suggested that interpersonal effectiveness represents a common issue for a substantial portion of children in need of special assistance.

Perhaps the most compelling justification for the study of children's interpersonal competence is its relationship with increasingly serious problems in later years. Kagan and Moss (1962) concluded that "passive withdrawal from stressful situations, dependency on the family, ease of anger arousal, involvement in intellectual mastery, social interaction anxiety, sex-role identification, and pattern of sexual behavior in adulthood were each related to reasonably analogous behavior, dispositions during the early school years" (p. 266). These observations have been supported by subsequent prospective and retrospective epidemiological research which has concluded that poor peer relations are predictive of subsequent delinquency (Mitchell & Rosa, 1981; Roff, Sells & Golden, 1972), dropping out of school (Ullmann, 1957), and general level of personal and social adjustment (Jones, 1974; Kellam & Brown, 1982). Janes, Hesselbrock, Myers and Penniman (1979) found that, amongst a variety of childhood behaviours, one teacher-rated item, "fails to get along with other children", was most closely related to a

wide spectrum of adjustment difficulties twelve years later. The work of Cowen and his colleagues merits particular mention. These authors (Cowen, Pederson, Babigian, Izzo & Trost, 1973) found that peer status in the third grade predicted the degree of maladaptation, socio-legal problems and psychopathology eleven to thirteen years later. The predictive power of this variable surpassed that of measures of absenteeism, grades, IQ and teachers' and nurses' ratings of adjustment. The preceding findings have provided the impetus for descriptive research of children's peer relationships and the development of intervention programs designed to enhance social functioning.

The Rationale for Social Skills Intervention

A child's acceptance by his or her peers is a function of both individual and situational determinants. These include demographic background, physical size and attractiveness, sex, academic and athletic abilities and cultural and subcultural norms and expectations (Hops, 1983; Rathjen, 1980). Many of these are comparatively fixed as they are a function of larger social issues or the individual's constitutional endowment. Another important determinant of social status, which overlaps with the above factors, is based on observations of differences between popular and unpopular children on a number of interactive social-cognitive and behavioural variables. Research has demonstrated, for example, that low status children spend more time in agonistic or unoccupied activities (Ladd, 1983),

5

give more negative reinforcement to peers (Hartrup, Glazer & Charlesworth, 1967), implement less adequate goals to social problems (Renshaw & Asher, 1983) and engage in more solitary or disruptive activities and less constructive group play (Rubin & Daniels-Beirness, 1983). These findings have been summarized in several recent reviews (e.g. Foster & Richey, 1979; Ladd, 1984; Van Hasselt, Hersen, Whitehill & Bellack, 1979).

These behavioural and cognitive variables have been placed within the broad category of 'social skills'. Rinn and Markle (1979) have defined social skills as the:

> repertoire of verbal and nonverbal behaviours by which children affect the responses of other individuals (e.g., peers, parents, siblings, and teachers) in the interpersonal context. This repertoire acts as a mechanism through which children influence their environment by obtaining, removing, or avoiding desirable and undesirable outcomes in the social sphere. Further, the extent to which they are successful in obtaining desirable outcomes and avoiding or escaping undesirable ones *without inflicting pain on others* (italics in text) is the extent to which they are 'socially skilled' (p. 108).

Although debate continues with respect to a more functional and precise definition (Conger & Keane, 1981; Michelson, Sugai et al., 1983), the hypothesis that social skills are a necessary component of social competence, and amenable to change, has served as the foundation for attempts at intervention.

Such efforts are based on a skill deficit model, that is, the belief that children are identified as socially incompetent because they lack the requisite skills for effective peer interactions. This hypothesis is in contrast to the alternative

suggestion that the observed differences between high and low status children are a consequence, rather than a cause, of sociometric status. In other words, this latter model proposes that unpopular children become entrapped in the role of a marginal group member, for circumstantial reasons rather than an actual lack of social abilities, and thus behave in a manner befitting their status. This labelling model is not supported, however, by the fact that interventions which have provided an explicit opportunity for unpopular children to interact with their more popular peers have failed to produce lasting changes in social status (e.g. Lilly, 1971). This model is also countered by research demonstrating that unpopular children exhibit impoverished knowledge of appropriate social behaviours in hypothetical, as well as naturalistic, situations (Asher & Renshaw, 1981). Putallaz (1983), for example, found that the quality of children's strategies for gaining entrance to a peer play situation and the accuracy of their perceptions of group behaviour were predictive of their sociometric status with a new group of children four months later.

Collectively, current data therefore supports the contention that observed behavioural differences between popular and unpopular children are a function of deficient skill acquisition. Situational determinants are nonetheless important, both in the onset of social difficulties and the effectiveness of ameliorative efforts. As discussed above, the social context may further exacerbate interpersonal difficulties by limiting

opportunities for the learning or reinforcement of new skills.
Nor does a deficit model necessarily exclude moderating
emotional or cognitive characteristics, such as anxiety, which
may inhibit or interfere with effective skill implementation. It
should be also be noted that children who exhibit behavioural
excesses such as aggression are seen as fitting within a deficit
hypothesis in that such behaviours are presumed to be a
reflection of a lack of knowledge of more appropriate prosocial
skills.

Ladd (1984) has outlined three propositions which are
central to interventions based on the skill deficit model:
children who experience problematic peer relations do so because
they lack basic social skills; social skills can be acquired
from programs designed to teach such skills; and the skills that
children acquired through training generalize to the social
environment and are instrumental in resolving existing peer
difficulties. These assumptions will be examined with respect to
existing treatment approachs designed to enhance social skills.
There are two currently predominant models of social skills
training: behavioural skill training and interpersonal cognitive
problem solving. These share a skill deficit approach but differ
in their emphasis on the nature of the skills that mediate
adjustment and acceptance. The assumptions and empirical
findings of these two models will now be outlined.

The behavioural approach to intervention is typified by the
work of Michelson, Sugai et al. (1983). These authors define
social skills as including observable verbal and nonverbal
behaviours which serve to interactively maximize reinforcement
within the social environment. Requisite skills are believed to
be discretely identifiable and relatively specific to particular
situations. Social learning principles are assumed to be
responsible for their initial acquisition and subsequent
modification. The justification for intervention is based on
observations of the extent to which unpopular children fail to
demonstrate, or exhibit lower rates of, particular social
behaviours relative to more competent peers in analogue or
naturalistic situations. Reardon, Hersen, Bellack and Foley
(1979), for example, found that socially competent children
surpassed incompetent children on the following behavioural
variables: verbal response latency, duration of speech,
initiation requests, appropriate affect and spontaneous positive
reinforcement of peers.

Intervention programs therefore attempt to teach children
specific sets of behaviours to be applied in given situations.
Treatment has been conducted both individually and in groups;
children have differed in age and in type and severity of social
dysfunction. Training has involved combinations of strategies
such as didactic instruction, coaching, behavioural rehearsal,

9

contingency management and live or filmed modelling.
Determination of program effectiveness has typically depended on
pre- versus post-treatment assessment of change in the trained
skills. Many studies have also included sociometric or
observational measures of peer status and acceptance.

In general, behavioural interventions have yielded mixed
results. Although some interventions have produced change in
both the targetted skills and global sociometric and behavioural
measures (e.g. Bierman & Furman, 1984; Ladd, 1981), such
consistent outcomes are relatively scarce. A more typical
finding is that treated children demonstrate improvement in the
trained behaviours without evidence that this behaviour
generalizes to the natural peer environment (e.g. Berler, Gross
& Drabman, 1982; La Greca & Santogrossi, 1980). In some cases
(e.g. Oden & Asher, 1977) the reverse trend has been observed:
treated children have gained in sociometric status in the
absence of evidence of behavioural skill change. The latter
findings challenge the underlying assumptions of such programs
and suggest that factors other than specific behavioural skill
deficits may mediate social acceptance. Some studies which have
been successful in increasing both peer status and rates of
prosocial behaviours have also produced an equivalent increase
in negative interactions (e.g. Gresham & Nagle, 1980). Overall,
reviews of the literature permit guarded optimism as to the
utility of behavioural social skills training with different
populations of socially disadvantaged children, at least with

respect to the selected areas (Asher & Renshaw, 1981; Conger & Keane, 1981; La Greca & Mesibov, 1979; Van Hasselt et al., 1979).

Despite some success behavioural social skill interventions may be criticized on both conceptual and methodological grounds. In the majority of studies children were selected for treatment on the basis of sociometric status rather than demonstrated social behavioural deficits. Reliance on sociometric status makes selection of relevant skills to be trained a function of clinical intuition or prior research findings rather than empirical determination of the specific needs of participants (Conger & Keane, 1981). In addition, it is quite possible that subjects are not in fact deficient in the domains targeted for intervention (Van Hasselt et al., 1979). Lastly, the failure to validate selected skills in terms of their relevance to peer acceptance raises the distinct possiblity that researchers may be training children in areas which are incidental to social success while ignoring more important skills (Ladd, 1984). It is worth noting that in one of the most successful interventions to date (Ladd, 1981) participants were chosen on the basis of both peer status and behavioural observation with the results of the latter providing the focus for training.

Areas selected for training often represent downward extrapolations of adult social behaviour which may have minimal bearing on children's interpersonal relations (French & Tyne, 1982). Indeed, little attention has been given to developmental

differences in interactional styles during childhood and adolescence. As Conger and Keane (1981) have pointed out, skills that may lead to social success for preschoolers may be irrelevant, or even disruptive, to peer acceptance in older children or vica versa. This possibility was exemplified by the research of Gard, Turone, Devlin and Berry (1983) who found that the rate of social interaction discriminated between older normal and behaviourally disturbed boys but did not do so for younger children. Similarly, the emphasis on observable skills characteristic of behavioural training programs has meant that covert cognitive or affective factors, such as anxiety, potentially relevant to social functioning have typically been ignored or treated as incidental products of behavioural deficits (Urbain & Kendall, 1980). Although the extent to which these variables are causes or consequences of peer alienation remains unclear, they may nonetheless seriously disrupt subsequent skill development and are worthy of more explicit attention (Wheeler & Ladd, 1982).

Behavioural interventions have typically involved training in a limited set of responses to be applied in specific situations with the assumption that these will generalize to new skills and contexts. As noted above, evidence of such generalization is sparce and there is the additional risk that positive change in the specific skill in question may have a negative impact on other behaviours. In a case report Kirby and Toler (1970) trained a preschooler to increase the rate of

positive reinforcement given to peers. Although the child did exhibit a substantial improvement in interaction rate, this was accompanied by significantly more aggressive behaviour. Such findings may reflect the fact that many behavioural interventions are based on an overly simplistic and situationally-specific notion of social skills (Strain & Kerr, 1981). More recent models in both the children's (Ladd & Mize, 1983) and adult's (McFall, 1982; Trower, 1982) social skills literature have emphasized the dynamic, contextual nature of social competence and the extent to which successful functioning requires an integration of behavioural, cognitive and affective components.

Interpersonal Problem Solving Training

The major alternative to the behavioural approach to the enhancement of children's social competence is the interpersonal cognitive problem solving (ICPS) model. Proponents of this model point out that many interpersonal encounters are inherently ambiguous in terms of the requirements for successful performance. Rather than eliciting specific behaviours such situations therefore require the participants to engage in a process of cognitive problem solving in order to achieve socially acceptable personal goals (Krasnor & Rubin, 1981). This process is seen as including such skills as the ability to recognize a potentially problematic situation, select the best solution from self-generated alternatives, implement an

appropriate strategy and monitor the effectiveness of the
outcome.

Historically, the importance of active problem solving for
personal and interpersonal adjustment has been stressed by
theorists and researchers such as Chittendon (1942), Dewey
(1933) and Sullivan (1953). Jahoda (1958) proposed that
psychological health is related to effective social
decision-making and pointed out the extent to which social
perceptions may be distorted by strong emotional needs or
experiences. More recent exponents of problem solving include
D'Zurilla and Goldfried (1971) who argued that cognitive
problem-solving interacts with the behavioural and affective
requirements of the particular situation. These authors also
noted that ICPS competence may be most relevant for those
difficult social situations for which no solution is immediately
available, thus differentiating social problems from those
interpersonal situations which elicit relatively automatic
behaviours that do not require conscious cognitive processing.
Implicit in this distinction is the notion that ICPS performance
is a function of both the characteristics of the situation and
the existing cognitive and behavioural repertoire of the
participant.

The primary impetus to the current interest in ICPS was
provided by the systematic research conducted by the Hahnemann
Social Problem Solving Research Team (Shure & Spivack, 1978,
1979, 1980; Shure, Spivack & Jaeger, 1971; Spivack & Shure,

14

1974; Spivack, Platt & Shure, 1976). These authors developed specific open-ended procedures, referred to as "hypothetical-reflective" measures by Rubin and Krasnor (1983), for assessing children's social problem solving abilities in response to a variety of problematic situations. In a series of correlational and experimental studies, summarized in Spivack et al. (1976), children rated by their teachers as displaying varying degrees of social and behavioural maladjustment were compared with their better adjusted peers and found to be deficient in ICPS abilities. In particular, the authors have identified the following competencies as being critical:

1. Alternative thinking, i.e., the ability to generate multiple alternative solutions to problematic interpersonal situations;

2. Consequential thinking, i.e., the ability to foresee the potential immediate and long-term outcome of a particular solution and to utilize this information in decision-making;

3. Means-end thinking, i.e., the ability to plan a specific behavioural course of action in order to obtain a desired goal, including realistic appraisal of the temporal and contextual demands of the situation, accurate self-evaluation and adaptive modifications when obstacles arise.

These skills have been studied in children as young as four years of age and are seen as following a developmental course with cognitively more advanced skills, such as means-end

15

thinking, emerging only in the middle latency period of childhood. ICPS abilities are independent of traditional measures of intelligence; however some differences in alternative thinking have been observed between lower and middle class children. Shure and Spivack (1979) interpret their collective findings as supporting their central tenet that specific ICPS skills function as significant mediators of healthy social adjustment and conclude that: "People over a broad age range, from diverse socioeconomic groups, of both sexes, and across a broad span of adjustment levels, who exhibit healthy, adaptive behaviors have consistently demonstrated markedly superior ICPS ability compared to those who manifest some degree of behavioral maladjustment" (p. 202).

Subsequent research has been supportive of the original Hahnemann findings but has led to some revision of our understanding of the nature and role of ICPS in children's social functioning. Rubin and Daniels-Beirness (1983), for example, found a concurrent relationship between peer status and social problem solving amongst preschoolers with the latter predictive of popularity in Grade 1. A subsequent analysis of their follow-up data (Rubin & Krasnor, 1983) indicated that this predictive relationship extended into the second grade. Similarly, in a sample of withdrawn preschool children, quantitative and qualitative indices of ICPS competence were concurrently and prospectively negatively correlated with observations of isolate play and positively with social play

(Rubin, Daniels-Beirness & Bream, 1984). Rubin and Clark (1983) found a relationship between social problem solving skills and teacher's ratings of prescholer's maladjustment with the strength of the correlation differing as a function of the type of behaviour problems observed. In a study with older children, Asarnow and Callan (1985) found that, in comparison with popular peers, unpopular latency-aged boys generated fewer solutions to hypothetical problems; chose solutions which were less prosocial and more aggressive; evaluated the consequences of antisocial solutions more positively and prosocial solutions more negatively; and exhibited more maladaptive planning skills. Richard and Dodge (1982) found that, compared with higher status peers, both aggressive and isolated elementary school-aged children were deficient in generating alternative solutions with equivalence between the two samples of low status children despite differences in selection and behavioural criteria. All groups were equally adept, however, at evaluating the potential effectiveness of given solutions. Nor were there any differences in the initial solutions generated; however, when further alternatives were requested, popular children continued to provide effective solutions while the choices of low status children were increasingly aggressive and ineffective. In a subsequent study (Richard & Dodge, 1983), ICPS competence was found to be predictive of the frequency and quality of children's social persuasive behaviour.

Not all research has clearly confirmed the relationship between ICPS and adjustment (e.g. Krasnor & Rubin, 1978; Weissberg, Gesten, Carnrike et al., 1981). Investigators of the Wayne State University Group have replicated the Hahnemann research (Rickel & Burgio, 1982; Sharp, 1981). These authors failed to find the predicted relationship between objective ratings of adjustment and ICPS abilities, a finding which they attributed to design flaws in the original research such as the absence of blind observations. Forman (1980) found that aggressive and non-aggressive children did not differ in consequential thinking. The aggressive children, however, provided more antisocial solutions, exhibited more irrational thoughts and evaluated children portrayed in the situations in a more negative fashion. Similarly, Deluty (1981c) found no differences in the quantity of alternatives generated by samples of assertive, aggressive and submissive children. There were, however, differences in the quality of solutions with the latter groups offering fewer assertive and more aggressive and submissive options. ICPS research has also been criticized on methodological and conceptual grounds. Butler and Meichenbaum (1981) have pointed out that the hypothetical-reflective measures developed by the Hahnemann group suffer from a number of potential problems including sensitivity to instructional set, limited selection of situations and insufficient information with respect to psychometric properties. These authors also note that many examinations of the relationship between ICPS and objective functioning have relied on

correlations with a single measure of adjustment, such as teacher's ratings, which in itself may be psychometrically weak. Similar criticisms were raised by Krasnor and Rubin (1981) who point out that ICPS measures have questionable ecological validity; there is, at best, a moderate relationshipship between children's self reported problem solving and observations of their actual behavioural strategies in interpersonal encounters. In a subsequent review, Rubin and Krasnor (1983) did suggest, however, that the hypothetical dilemnas used in ICPS evaluations tend to "pull" for cognitive processing while naturalistic, familiar situations typically do not demand active reflective thought, thus some discrepancy between ICPS measures and observed behaviour may be expected. Lastly, these authors note that normative data with respect to developmental and typological differences in social problem solving is scarce, thereby limiting the identification and remediation of children with interpersonal difficulties. Given these concerns it is worth mentioning that Elias, Larcen, Zlotlow and Chinsky (1978) have developed a hypothetical-reflective instrument, the Social Poblem Solving Situation Analysis Measure (SPSAM), which provides a more sophisticated and psychometrically sound assessment of ICPS and should be considered in future intervention and developmental research.

It is worth considering ICPS with respect to other developmental research, particularly parallel studies of childrens' interpersonal functioning. Piaget (1926) considered

young children to be neither willing nor able to take into account the perspective of their peers. This egocentrism waned in early childhood allowing the child to gain a more sociocentric view of the world through reciprocal negotiation and compromise. The Piagetian model has spurred investigation of the development of specific social-cognitive variables including perspective-taking, empathy and social inferential reasoning. The relationship between such abilities and ICPS skills, however, remains largely unknown (Shantz, 1983). Research has revealed the presence of social-cognitive variables which augment the fundamental ICPS skills identified by the Hahnemann group. Rather than providing children with a social goal and examining resolution strategies, as is characteristic of most social problem solving studies, Renshaw and Asher (1983) asked children to formulate their own goals. They found that older and higher status children produced friendlier, more prosocial goals as well as more sophisticated strategies. Peery (1979) found that popular preschoolers were more adept at identifying peer's affective state than unpopular children. Lastly, Goetz and Dweck (1980) found that children who attributed rejection to internal, personal incompetence rather than external, situational factors exhibited the least effective subsequent resolution strategies. It is worth noting that the children included in this study did not differ in problem solving skills prior to rejection, thus suggesting that differences were not simply a result of initial social competence.

Despite some inconsistent findings, the preceding research is generally supportive of the importance of ICPS competence as a relevant mediator of social functioning during childhood. The nature of social problem solving appears to be much more complex than that presented by the Hahnemann research. It seems unlikely that ICPS skills emerge in the 'all or none' fashion as originally implied. It is also probable that specific skills may prove particularly critical at certain ages or in certain situations (Pellegini & Urbain, 1985). Alternatively, subgroups of socially maladjusted children may exhibit differential patterns of social-cognitive deficits (Rubin & Clark, 1983). Rather than simple quantitative interpretation of children's hypothetical-reflective performance it is important to examine qualitative differences in responses (Deluty, 1981c) and the sophistication of their strategies when initial solutions meet with failure (Goetz & Dweck, 1980; Richard & Dodge, 1982). Even if ICPS skills are considered central to social competence, they must nevertheless be integrated with behavioural and affective factors in order to result in interpersonal success (Ladd, 1984). At present, the primacy of social/cognitive versus social/behavioural development remains speculative (Rubin & Krasnor, 1983).

Finally, there is a need to integrate ICPS within the larger cognitive context including the development of such cognitive processes and structures as inferential reasoning, inductive and deductive logic, attributional style, perspective-taking and

21

personal values (Rathjen, 1980).

Social Problem Solving Interventions

The enhancement of ICPS abilities has been the primary goal of a variety of social problem solving (SPS) programs. This approach to improving children's interpersonal competence is intuitively compelling for a number of reasons. As Durlak (1983) has stated:

> Good problem-solvers, it would seem, are flexible and adaptable in different social circumstances, able to deal effectively with stress, and able to develop suitable methods to attain personal goals and satisfy their needs. Moreover, repeated success in problem-solving would be expected to heighten self-confidence, motivation, and perseverance, thus facilitating future task performance (p. 31).

Rather than teaching children specific verbal and non-verbal behaviours to be applied in specific situations SPS training emphasizes the acquisition of general concepts applicable to a variety of situations. A major hypothesis of such programs is that the enhancement of cognitive processes believed to mediate competence across situations will naturally lead to generalization beyond the training context, thus overcoming one of the main limitations of skill-specific approaches (Urbain & Kendall, 1980). Problem solving also allows for the complex, interactive nature of social relationships by encouraging generation of alternative strategies and self-evaluation when faced with unanticipated obstacles or conflicts (Goetz & Dweck, 1980).

Rather than identifying a particular individual as possessing a particular maladaptive trait, the ICPS approach focusses on the relationship between the coping style of the person and the situation in which performance is required. Mischel (1984) recently suggested that individuals are most likely to exhibit situationally consistent maladaptive behaviour in those circumstances which exceed his or her cognitive and self-regulatory competence. In contrast, situations falling within an individuals capacity are less likely to produce 'typical' inappropriate behaviour. This contention was empirically supported with samples of children characterized as aggressive, withdrawn and prosocial. In non-stressful situations there was little correspondence between these global categories and actual behaviour, but when faced with a demanding task children in both aberrant categories displayed the anticipated negative social behaviour.

Social problem solving is unique in the extent to which it gives the child responsibility and credit for the selection of personally desired goals and strategies, thus avoiding the imposition of adult values and perspectives which may be of little relevance to the particular situations which a child may encounter (Combs & Slaby, 1977). The importance of the perspective of the individual is stressed by Fiedler and Beach (1978) who have argued that social competence is a function of a person's expectations of the consequences of a certain behaviour in a particular situation rather than a global trait or

behavioural deficit. Although the ICPS model is in need of
normative refinement, it is conceptually consistent with
developmental theorizing in terms of progressive changes in a
child's cognitive, emotional and behavioural maturation (Durlak,
1983). The ICPS model is also consistent with the current
emphasis on 'metacognitive' processes believed to play a
superordinate role in emotional and behavioural functioning
(Meichenbaum & Asarnow, 1979). As Pellegrini and Urbain (1985)
have pointed out, the emphasis on teaching children how to
think, rather than what to think, is more likely to lead to
long-term adjustment. Social problem solving therefore appears
to be a promising model for the promotion of social competence.
It is necessary to examine the intervention literature to
determine the extent to which this promise has been realized.

Although prior treatment studies had included a problem
solving component (e.g. Chittenden, 1942), the pioneering
intervention research was conducted by the Hahnemann team. In
the first of these studies Spivack and Shure (1974) developed a
social problem solving program containing the following
components: introduction to basic ICPS concepts; affective
recognition in oneself and others; and practice in solving real
and hypothetical problems. Instructional techniques included
scripted didactic lessons, games and dialogues. Training was
conducted by the teachers of low income, inner-city preschoolers
including subsamples of children previously identified as
aggressive and withdrawn. In comparison with a matched sample of

untreated controls, children receiving training exhibited significant improvement in ICPS skills and teacher ratings of adjustment. Those children who demonstrated the greatest change in problem solving skills were rated as improving the most behaviourally, thus supporting the basic contention that ICPS skills mediate interpersonal adjustment. Furthermore, a significant proportion of treated children initially identified as socially inept were subsequently labelled adjusted. Gains were maintained one year later based on ratings by teachers blind to original group membership.

Social problem solving has also been applied within the family. Shure and Spivack (1978) compared mothers who taught their children problem solving with an equivalant control sample. Trained children exhibited significantly greater improvement in ICPS skills and a reduction in socially maladaptive behaviur based on blind teacher's ratings. Amongst children who did improve, there was a relationship between adjustment and alternative thinking but not consequential thinking. Trained mothers also improved in their parental problem solving skills; however this did not generalize to their interpersonal cognitive understanding of adult situations. There was a correspondence between change in parental child-rearing skills and their children's ICPS abilities, primarily with respect to the generation of solutions. In a series of studies differing somewhat in intervention approaches and subject characteristics the Hahnemann group has repeatedly found, in

comparisons of trained with untrained subjects, that: treated
children have demonstrated improvement in both ICPS skills and
adjustment; there is a significant positive correlation between
cognitive and behavioural gains; and change is maintained for at
least one year (Shure and Spivack, 1979, 1980; Spivack et al.,
1976).

These findings provided the impetus for further research.
Although subsequent interventions have adopted the basic ICPS
focus of the Hahnemann group, they have differed somewhat in
instructional techniques, inclusion of additional social skills
training and opportunity for applied behavioural practice of
problem solving. Camp, Blom, Hebert and van Doorninck (1977)
used self-instructional and social problem solving training with
aggressive primary school boys. Comparisons were made with
untrained aggressive and non-aggressive controls. Although
teachers rated both aggressive groups as exhibiting less
negative behaviour at posttesting, only trained children
improved in prosocial behaviour. The results of analysis of a
battery of measures of impulse control, academic achievement and
ICPS were less consistent. Treated children exhibited an overall
pattern at posttesting which differed from aggressive children
and resembled normal children. They also gained in alternative
thinking relative to both control groups. However, this was
accompanied by an increase in aggressive solutions, leading the
authors to recommend that interventions with this particular
population be highly structured and provide an explicit

opportunity for skill practice. Tellado (1984) used a problem solving curriculum adapted from that of Spivack et al. (1976) with a sample of junior high school students identified as having adjustment problems. In comparison with no treatment controls, trained students demonstrated significant improvement on five of seven problem solving measures as well as improved self-esteem and a more internal locus of control. There were indications of an interaction between outcome and age with younger students exhibiting less change.

Although not a direct study of social competence, Kendall and Wilcox's (1980) intervention program with impulsive children deserves mention given the sophistication of the design, use of measures relevant to the proposed research and similarity of training strategies to SPS training. An attention placebo condition was compared with two types of treatment both of which included self-instructional training and contingency management. One variant focussed on concrete strategies for dealing with specific tasks requiring cognitive and behavioural self-control while the other emphasized conceptual strategies applicable to a wider variety of situations. Both treatment conditions surpassed controls at post-treatment based on blind teacher ratings of self-control and hyperactivity with some indications of more robust change for children receiving conceptual training. There were no group differences in self-report or cognitive measures. A representative subsample of the original subjects were followed up one year later (Kendall, 1981). Although group

differences were no longer apparent, conceptually trained children demonstrated better recall and application of skills and these subjects continued to exhibit behaviour within the range expected for nonreferred students. In summary, while outcome patterns have varied, social problem solving interventions have proven effective with different populations of children and adolescents experiencing such adjustment problems as delinquency (Ollendick & Hersen, 1979), emotional disturbance (Elias, 1979) and academic and behavioural difficulties (Schneider, 1974).

Not all SPS programs have been as clearly successful. Urbain (1980) compared social problem solving plus self-instructional training, social perspective taking plus self-instructional training and behavioural contingency management with impulsive-aggressive primary school children. Although all treatments increased ICPS skills at post-testing and follow-up, there was no difference between groups and no change in teacher's ratings of adjustment. There was, however, a significant positive relationship between cognitive and behavioural change. Similarly Berler, Gross and Drabman (1982) successfully improved learning disabled children's social problem solving skills. This did not, however, generalize to *in vivo* behaviour or greater peer acceptance. Sharp (1981) attempted a replication of the Hahnemann intervention program including methodological improvements such as appropriate controls, blind behavioural ratings and extended follow-up.

Inner city preschool children identified as 'adjusted' or 'aberrant' were assigned to one of three conditions: social problem solving training based on Spivack and Shure's (1974) manual; modified social problem solving excluding discussion of prerequisite concepts; or an attention control condition consisting of academic and cognitive enrichment. 'Aberrant' children who received the full problem-solving intervention demonstrated greater change in their alternative thinking abilities than similar children in the control group or 'adjusted' children in any condition. No differences were found, however, in consequential thinking or behavioural adjustment. Rickel, Eshelman and Loigman (1983) reevaluated these children six months later and found no group differences in either cognitive or behavioural variables. The authors tentatively attributed this failure to design flaws and the lack of opportunity for *in vivo* experience and reinforcement of skills inherent in the Hahnemann program. Despite these negative findings, reviews of the literature have been encouraging in terms of the utility of social problem solving in improving the cognitive and behavioural skills of children exhibiting signs of maladjustment (Combs & Slaby, 1977; Pellegrini & Urbain, 1985; Urbain & Kendall, 1980).

Social Problem Solving as a Primary Preventive Strategy

The preceding research has largely been conducted with children with identified behavioural or emotional adjustment problems. These include programs for children with specific social difficulties (e.g. Camp et al., 1977) as well as for individuals exhibiting patterns of maladjustment including interpersonal conflicts (e.g. Hersen & Ollendick, 1979). An alternative to these remedial intervention strategies is the implementation of training with children not yet exhibiting indices of pathology. The importance of such a primary prevention approach was explicated by Caplan (1964) who differentiated between those secondary and tertiary interventions designed to reduce the severity and/or duration of existing disorders and those aimed at avoiding the onset of possible maladjustment in currently well-functioning individuals. This latter primary strategy is conceptually and practically compelling. As Kirschenbaum and Ordman (1982) have pointed out, despite the proliferation of professional and paraprofessional mental health services there is still a shortage of resources relative to the prevalence of identified individual and social problems. These authors also note that the services that do exist are used infrequently and ineffectively by those segments of society, typically within the lower socioeconomic strata, in greatest need of assistance. As primary programs are typically conducted with large samples and can be implemented within a community setting characterized by indices

of risk, they represent a cost- and resource-efficient mode of delivery. Given that individuals exhibiting relative adaptation may be better able to learn and integrate new coping strategies within their daily functioning, primary services are potentially more efficacious than palliative treatment of individuals in immediate crisis (Stone, Hinds & Schmidt, 1975).

Primary programs also avoid the risk of labelling a particular individual as a 'problem child' which may inadvertently exacerbate stigmatization and self-fulfilling expectations in the eyes of peers, parents and teachers. Lastly, and with specific reference to social skills interventions, because primary programs are provided to all children within a given setting they are not confronted with some of the difficulties involved in the selection of those particular children in need of secondary or tertiary treatment. French and Tyne (1982) have pointed out that identification of the estimated five to fifteen per cent of children who experience significant peer problems can vary radically depending on the nature of assessment methodology, thus implying that some children in need of social assistance are not served while less severely disadvantaged children are included.

Primary prevention has been embraced by both policy-makers and researchers as a powerful alternative to traditional service delivery. This attraction is evocatively described by Emory Cowen (1977):

> Primary prevention is a glittering, diffuse, thoroughly abstract term. Its aura is so exalted that some put it on the same plane as the Nobel prize. It holds the mysterious, exciting promise of "breakthrough". It offers a sharp contrast to all that mental health has done, a shadowy but nevertheless grand, alternative. It is terribly "major" - in the lingo of childhood games I have known, something to be approached with massive 'great steps'. (p.1)

Lest Cowen appear too credulous it should be pointed out he concludes that we have, at best, approached attainment of this idealized grail with 'baby steps'. Subsequent authors have raised similar concerns. Lorion (1983) emphasizes that primary prevention efforts are premature in the absence of explicit knowledge as to the nature of a disorder and its environmental, familial and individual etiology. Gesten, Flores de Apodaca, Rains, Weissberg and Cowen (1979) stress that primary programs should aim to enhance healthy adaptation rather than exclusively focussing on the prevention of symtomatology. These authors also point out the problems inherent in an operational conceptualization of positive mental health and recommend that primary programs emphasize specific, rather than global, competencies associated with effective functioning.

Gesten et. al (1979) suggest that social problem solving represents such a competency. Given the previously discussed assumption as to the mediating role of ICPS in interpersonal functioning and the strategic, rather than specific, focus of training, social problem solving proficiency would seem to be an ideal goal for primary programs. This is in contrast with interventions with a situational and skill-specific focus which

32

may have little utility for the general population. In addition to its relevance for social adaptation SPS competence is logically related to such key individual mental health variables as self-esteem, autonomy, perseverance and empathy (Durlak, 1983).

The majority of primary SPS programs have been implemented within the school. This is an optimal setting for several reasons. Although socialization initially occurs as a function of the family environment, subsequent development of interpersonal competence is increasingly dependent on school experience as the child develops greater emotional, cognitive and social maturity and independence. While the primary goal of the school is clearly academic education, it is also serving a major socializing function. This is usually implicit rather than explicit; indeed, Cartledge and Milburn (1978) have described instruction in social behaviours, values and attitudes as the school's "hidden curriculum". School is also the setting where adjustment problems may first become evident. In their developmental epidemiological research Kellam, Rubin and Stevenson (1982) found teacher's ratings of classroom behaviour to be predictive of adjustment ten years later. These authors point out that the classroom is not just a convenient setting for the observation of children but a crucial social field where a teacher's determination of a child's success or failure at prescribed tasks have concrete consequences for his or her future. Unfortunately, those individuals with the best

33

opportunity to influence the development of social skills are often poorly equipped to do so and may inadvertently shape and maintain those very behaviours they find undesirable (Cartledge & Milburn, 1978; Spivack & Swift, 1973). Thus, given that a community-based program is dependent on the participation and interest of existing personnel, implementation of an SPS program within the school may heighten teacher's awareness of the importance of students' social functioning and provide some concrete strategies for classroom and individual management. Many authors have emphasized the need to train social skills in the environment where such behaviours are most relevant in order to maximize generalization and maintenance (Combs & Slaby, 1977; Hops & Finch, 1982; Michelson, Mannarino et al., 1983). Teaching such skills as part of the regular classroom curriculum ensures that children will share a common problem solving language and will have *in vivo* opportunities for practice and reinforcement of effort. The informed approval, and possible involvement, of teachers and parents encourages their receptivity to newly developed, yet fragile, social skills in their children (Van Hasselt et al. 1979). It is also more likely that less skilled children will have natural opportunities to learn from the examples set by their more adept peers in the school environment (Rose, 1983).

There have been a number of empirical studies of social problem solving as a primary prevention strategy with non-clinical samples in an educational setting. Houtz and

Feldhusen (1976) compared SPS training, and training plus reinforcement with a no-treatment control condition. Contrary to expectations children in the training-only condition surpassed both controls and training-plus-reward groups on a hypothetical-reflective ICPS measure and transfer test of problem solving ability. This study is limited by the exclusion of behavioural observations, sociometric status and teacher or home adjustment ratings. These measures were also absent in Stone, Hinds and Schmidt's (1975) intervention study which used videotaped modelling and games to teach SPS to elementary school children. In comparison with no-treatment controls, trained children did gain in ICPS skills. Closer examination of the results of this study, however, revealed an interaction between experimental condition and grade with younger children exhibiting less improvement. More robust findings were obtained by Feis and Simons (1985) in their report of three yearly social problem solving programs delivered to rural, low-income preschoolers. The training was based on Spivack and Shure's (1974) curriculum and comparisons were made between treated and untreated subjects. Trained children demonstrated significant improvement in the quantity and quality of alternative solutions over all three years. A teacher-rating scale introduced in the last year revealed that trained children exhibited a reduction in two of three categories of negative behaviour. Children exhibiting aggressive behaviour were the only subgroup who did not improve with training. Treated subjects received significantly fewer referrals to an ancilliary mental health

consultant and ICPS gains were correlated with behavioural change.

Many primary SPS interventions have been evaluated and revised over several studies. Typical of these is the research conducted at the University of Connecticut. In the first of these studies (Allen, Chinsky, Larcen, Lochman & Selinger, 1976), third and fourth grade children were involved with an SPS program using a combination of the Hahnemann curriculum and D'Zurilla and Goldfried's (1971) schematic problem solving model. In comparison with untrained children, subjects receiving the program improved not only on a hypothetical-reflective measure of ICPS but also on a structured, 'real-life' measure of problem solving. Trained children also exhibited a shift towards internal locus of control but did not change in sociometric status, self-esteem or blind teacher's ratings. In a subsequent examination of variants in the intensity and modality of training, McClure, Chinsky and Larcen (1978) compared televised SPS modelling, modelling plus discussion and modelling plus behavioural rehearsal with no treatment. Outcome variables included an open-ended problem solving measure, a structured group interaction and adult-child interaction and self-reported locus of control. In general, treatment subjects surpassed controls on the problem solving measure, group interaction measure and locus of control. Although tentative, there was some evidence for the superiority of the modelling plus rehearsal condition over other modalities. Another iterative program is

36

Project AWARE (Elardo & Caldwell, 1979) which emphasizes both social problem solving and perspective taking using a variety of instructional and participatory training strategies implemented by the classroom teacher. Outcome evaluation indicated that treated subjects surpassed untreated controls in social role-taking, ICPS skills and teacher's adjustment ratings. Furthermore, those children who were initially most poorly adjusted exhibited the greatest change. Subsequent investigations of this program revealed an interaction between change and subject and trainer characteristics. Thomson-Rountree and Woodruff (1982) found both sex and racial differences in treatment outcomes. Thomson-Rountree and Musun-Baskett (1981) found that those teachers who demonstrated the best implementation skills also reported the greatest improvement in their students following training.

The work of the Rochester Social Problem Solving Group will be discussed in some detail in view of the quality of the evaluation and intervention designs and their relevance to the current study. Consistent with the research previously described, the Rochester group's training programs have incorporated key aspects of Spivack and Shure's (1974) and D'Zurilla and Goldried's (1971) treatment models. In addition, based on developmental research on the importance of perspective-taking skills, an emphasis was placed on teaching participants to identify emotions in themselves and others as a prerequisite to formal problem solving. Lastly, given Spivack et

al.'s (1976) contention that some children's impulsivity limits their ability to translate ICPS skills into behaviour, a self-control strategy to help children reflect before acting was introduced. The resulting hybrid program is described by Gesten et al (1979) and includes the following sequential steps: identification of 'upset' feelings, problem identification, goal selection, impulse delay, generation of alternatives, consideration of consequences, implementation and perseverance in the face of obstacles. The program is presented in a series of highly structured lessons to be used as part of the regular classroom curriculum for Grade 2 to Grade 4 children. Treatment is conducted by classroom teachers with training and supervision by program consultants. Instructional techniques include didactic presentation, problem-solving games, modelling and role-playing using a variety of modalities for presentation. Core concepts are augmented by the use of booster sessions and supplementary lessons as well as various strategies to encourage maintenance and *in vivo* application of skills. Outcome evaluation has typically been based on a comparison between treated and untreated children in ICPS skill acquisition and teacher adjustment ratings, with some attention to intellectual and personality variables. Weissberg and Gesten (1982) have discussed strategic considerations in the implementation and assessment of the program in an applied setting.

The first experimental trial of the program (Gesten et al., 1979; Gesten et al., 1982) included three conditions: a

seventeen-lesson training program emphasizing modelling, role-playing and discussion; an abbreviated program using videotaped modelling; and a no-treatment control. Participants were two hundred suburban children in one of nine classes. Acquisiton of ICPS skills was individually assessed via a hypothetical-reflective measure, performance on a simulated problem situation and a problem-solving interview. Adjustment measures included teacher-ratings of competencies and adjustment problems, sociometric status and self-reports of locus of control and self-esteem. Analysis of ICPS change scores revealed that children who had received the full treatment package surpassed both the abbreviated training and control conditions on the generation of alternatives and consequences, awareness of problem solving principles and frequency and spontaneity of observed analogue solutions. Teacher ratings, however, favoured the control condition over one or both treatment groups on five of ten adjustment variables. There were no condition differences in self-esteem or locus of control, but the abbreviated treatment group deteriorated in sociometric status relative to both other conditions. There were some indications of a relationship between ICPS and adjustment improvement for the full-package subjects, however this was only true for second grade subjects. Significant correlations between outcomes were not found for the control or abbreviated treatment condition. A matched subset of the original sample was reevaluated one year following the completion of training. Relative to controls, children receiving the full treatment package exhibited a

39

greater pre- to follow-up improvement in consequential thinking. Differences in alternative thinking and behavioural problem solving were no longer evident. Adjustment ratings by teachers blind to original group membership indicated that full treatment and/or abbreviated treatment children improved more than controls on seven of ten variables. These findings were partially supported by sociometric findings, particularly in terms of greater popularity for the abbreviated training group. The authors tentatively attributed the discrepancy between post-treatment and follow-up adjustment findings to the subjects' need for repeated practice in SPS application before cognitive skills are translated into visible behavioural change.

Weissberg, Gesten, Rapkin et al. (1981) revised the Rochester program by increasing the frequency of training and number of lessons, including a parent training component and adding two additional SPS steps to encourage social role-taking and means-end thinking. The program was delivered to low socioeconomic status urban children and middle socioeconomic status suburban third-grade children, with subjects assigned to either the intervention or no-treatment control conditions. Outcome variables included hypothetical-reflective and simulated behavioural measures of ICPS, teachers' ratings, sociometric status and self-reported adjustment. Treated children improved more than controls in problem identification skills, frequency and quality of alternatives and consequential thinking with some suggestion of gains in means-end thinking and behavioural

problem-solving. There was no difference between conditions in social perspective-taking. Examination of adjustment variables revealed improvement for the suburban, but not the urban, trained subjects who improved on seven of nine teacher-rated outcome variables. Urban children actually deteriorated on five of nine teacher-ratings relative to controls. No differences between conditions were found in sociometric status, subjective self-esteem or anxiety nor were there significant relationships between SPS skill acquisition and adjustment change. The discrepency between socioeconomic subsamples was seen as a function of differences between subjects and teachers in the two settings. Unlike their suburban counterparts, urban teachers expressed discomfort with the number of aggressive solutions generated by their students; such solutions were seen as disruptive to classroom discipline. One teacher in the treatment condition was reluctant to participate in the program and her class exhibited the least change in ICPS and adjustment. Evaluation was further hampered by staff turnover and poor attendance at parental meetings. Although these circumstances hinder clear interpretation of SPS effectiveness, they do indicate the importance of situational and individual trainer factors in SPS implementation and evaluation.

The Rochester group's most recent effort (Weissberg, Gesten, Carnrike et al., 1981) included a stronger emphasis on classroom management strategies in response to the above concerns. Although the number of lessons was reduced, the content and

format was very similar to the preceding program. Subjects were again low-income/urban and middle-income/suburban children assigned to either treatment or control conditions. Outcome variables again included both ICPS and adjustment measures. With respect to skill acquisition, trained children improved more than controls on cognitive and behavioural SPS performance and problem-solving confidence. Both urban and suburban trained children exhibited improved adjustment on five of ten teacher adjustment ratings, however interpretation of these findings was tempered by the lack of pre-treatment equivalence between conditions on several variables. There was no change in sociometric status nor were there any overall indications of a relationship between skill acquisition and adjustment.

Weissberg and Gesten (1982) have interpreted the results of these three consecutive studies as providing progressive, but not unqualified, support for the utility of their intervention package. In particular, they recommend program replication and clarification of the treatment components necessary for the enhancement of competence in different sociodemographic groups.

The Rochester research is commendable in many respects. The researchers have successively revised the intervention curriculum as a result of preceding findings and have placed an increasing emphasis on strategies, such as behavioural rehearsal and SPS dialoguing, which will encourage generalization and maintenance of gains. Outcome measures have similarly been modified over repeated trials and have provided multifaceted

assessment of both cognitive and behavioural ICPS skills. The researchers have been sensitive to the needs and characteristics of applied settings, and training has been conducted by teachers resulting in a generally positive reception by educational personnel and students.

This research is not without methodological and interpretive difficulties. Although a comprehensive array of strategies have been utilized to ascertain the extent to which subjects have acquired ICPS skills these have frequently been constrained by training-to-task problems. In other words children are instructed in methods of solving the same type of problem situations on which they are assessed, thereby limiting evidence that skill acquisition has generalized to novel encounters (Pellegrini & Urbain, 1985). The use of teachers as the priniple SPS trainers, while advantageous in terms of increased likelihood of acceptance and application, raises the possiblity that observed change will be a function of the individual teacher's competence and investment in the program. Such findings have been noted in both the Rochester research (Weissberg, Gesten, Rapkin et al., 1981) and other SPS programs (Thomson-Rountree & Musun-Baskett, 1981). Gesten and Weissberg (1982) have noted that reliable and valid tests of the efficacy of problem solving programs will depend on interventions taught directly by experienced SPS trainers. The use of teachers as trainers may also result in positive or negative bias in their completion of outcome rating scales (Pellegrini & Urbain, 1985).

In all three Rochester studies the authors reported that nested class effects, in other words variability between classes within conditions, surpassed overall condition effects on several, primarily teacher-rated, dependent variables (Gesten et al., 1982; Weissberg, Gesten, Carnrike et al., 1981; Weissberg, Gesten, Rapkin et al., 1981). While it is possible that this reflects actual differences in adjustment between classes, it is equally conceivable that such variance is a function of differential teacher rating criteria and outcome expectations. The statistical procedures utilized by the Rochester group also cast some doubt on the validity of conclusions they reached. Although the authors correctly acknowledged that classes receiving treatment are nested within condition effects, data analyses were apparently conducted as if this variable was equally represented across conditions, thus resulting in inaccurate significance levels due to inflated degrees of freedom and inappropriate error terms (Myers, 1972). An additional source of difficulty is the decision to focus on significance levels per comparison to the exclusion of experimentwise error rates. This raises the risk of Type I errors which increases with the number of comparisons performed on the basis of a single experiment. While the relative emphasis on false positive versus false negative results remains controversial (Davis & Gaito, 1984), this issue in data analysis merits more explicit consideration, particularly if the decision to disseminate SPS programs in applied settings rests upon empirical findings. It should be noted that these methodological

44

concerns are not unique to the Rochester research, but are characteristic of most primary SPS programs.

In summary, primary SPS programs have been successful in terms of demonstrating that trained children do in fact acquire ICPS skills. Evidence that this, in turn, translates into improved adjustment on the basis of subjective, sociometric or teacher's ratings has been less consistent. Major reviews of the area have accordingly been mixed. Although some authors have concluded that SPS training is a useful approach for enhancing social competence and have encouraged further research (e.g. Combs & Slaby, 1977; Little & Kendall, 1979; Pellegrini & Urbain, 1985; Urbain & Kendall, 1980), others have been less supportive. Ladd and Mize (1983) have acknowledged that SPS techniques are successful in terms of increasing social skills knowledge but conclude that they are inadequate in their lack of focus on improving generalized skillful performance. Kirschenbaum and Ordman (1983) have noted that the inconsistent evidence with respect to the correspondence between SPS and adjustment gains as a function of training counters the central tenet of such interventions, that ICPS skills are pivotal to social competence. Durlak (1983) has raised similar concerns and has argued that the current data suggests that problem solving skills are situationally specific rather than generalizable across an array of encounters as is assumed by existing SPS programs.

The primary SPS research also suffers from a number of noteworthy methodological problems. Few studies have included an adequate attention-placebo comparison condition in order to demonstrate that observed change is a function of active treatment components rather than non-specific factors such as therapist attention, demand characteristics or Hawthorne and reverse-Hawthorne effects (Urbain & Kendall, 1980). Those exceptions have obtained mixed results (e.g. Michelson, Mannarino et al., 1983; Sharp, 1981). Similarly, there has been a notable lack of follow-up evaluations of treated subjects. Although some studies have reported long-term maintenance, or even enhancement, of gains (e.g. Gesten et al., 1982; Rotheram, 1980; Spivack & Shure, 1974), other studies have found that group differences were no longer apparent at follow-up (e.g. McClure et al. 1978, Michelson, Mannarino et al., 1983). SPS outcome evaluations have also suffered from the use of inadequate or inconsistent dependent variables. Some studies have relied exclusively on measures of ICPS change and excluded assessment of behavioural adjustment (e.g. Houtz & Feldhusen, 1976; Stone, Hinds & Schmidt, 1975). Such studies provide particularly weak indices of treatment effectiveness given the previously cited problem of 'training to task' and the inconsistent psychometric properties and lack of overlap between many existing ICPS measures (Butler & Meichenbaum, 1981). Although most studies have included measures of adjustment these have often depended on a single perspective, such as a teacher, who was frequently aware of assignment to the experimental

46

condition (e.g. Elardo & Caldwell, 1979) or have relied on instruments with unpublished psychometric properties (e.g. Spivack & Shure, 1974).

These difficulties tend to be characteristic of school-based primary SPS research which typically requires a large sample size, extensive assessment and considerable cooperation and effort on the part of educational staff. Furthermore, such research is, by definition, conducted within an applied setting with its own unique organizational demands, expectations and assumptions which may unexpectedly impinge on any research effort. Nonetheless, carefully designed evaluations are essential before any program can be reasonably considered to be successful and disseminated to the general population. Durlak (1983) has pointed out that no SPS program to date has truly met the ultimate requirement of primary prevention in terms of demonstrating the reduction of future maladjustment in treated subjects. Lorion (1983) has similarly called for caution pending further research and points out that any primary program which is designed to enhance interpersonal competencies must also be considered as potentially powerful enough to result in negative outcomes. Given the ambiguous results obtained by current SPS studies, particularly with respect to observed adjustment, there is a need for more careful evaluation and replication of existing programs. Once it can be adequately demonstrated that such interventions produce consistent improvement in interpersonal functioning following training it will be

appropriate and necessary to examine their long-term impact and ascertain the active treatment components. The current research represents an attempt to address some of the issues involved in the former objective.

Specific Issues to be Addressed by the Current Research

Multimethod evaluation of treatment outcome

One possible source for the inconsistency of primary SPS findings to date is the lack of clarity with respect to the anticipated outcome of treatment. Although most programs share an explicit or implicit intent of enhancing social competence, there is, as discussed previously, little consensus as to the nature and measurement of this construct. In the absence of a shared operational definition, many program evaluations have relied on rather global outcome variables and may therefore have failed to detect specific and relevant change (Ladd, 1984). Given that social competence is multifaceted and that existing assessment techniques often tap different aspects of this concept (Rathjen, 1980), reviewers have repeatedly recommended the use of a multimethod procedure to evaluate program effectiveness (Durlak, 1983; Hops & Greenwood, 1981; Pellegrini & Urbain, 1985; Urbain & Kendall, 1980). Such a strategy would ideally include measures of both positive and negative facets of social competence (Gesten, 1976) which tapped interpersonally relevant cognitive, behavioural and emotional components (Ladd & Mize, 1983) from the perspective of different observers (Hops,

1983).

Improved statistical analysis to reduce the risk of Type I and Type II errors

In view of the complexity and ambiguity of the preceding requirements it is not surprising that they have not been truly fulfilled by any study to date. The majority of recent research has, however, used multiple outcome measures of presumably relevant dimensions, frequently on the basis of varying perspectives. While this is commendable, it does present problems in the conceptual interpretation of, and statistical confidence in, resulting conclusions. The inclusion of multiple dependent variables requires multiple statistical comparisons. This, in turn, increases the risk of false positive results (Type I errors; Myers, 1972). While the conscientious researcher may guard against this by adopting an appropriate family-wise error rate, this increases the possibility that the null hypothesis may be falsely confirmed (Type II errors) and that real treatment effects will be missed.

Determination of underlying factor structure as the basis for outcome evaluation

An additional difficulty lies in the interpretation of those outcome studies which result in significant change on some, but not all, dependent variables. This is particularly problematic for the social skills training research in view of the absence of a comprehensive model which would allow prediction of those

49

central variables that would be expected to change as a function of intervention. This is further compounded by the lack of data with respect to the relationship between specific outcome measures and the relatively poor overlap between different perspectives on interpersonal functioning (Matson, Esveldt-Dawson & Kazdin, 1983). Gresham (1981) reached similar conclusions on the basis of a factor analysis of sociometric and behavioural measures of social competence; he observed that social skills assessment technology has lagged behind the development of intervention techniques. In the absence of any demonstrably optimal measure, multi-method evaluation of program effectiveness remains necessary. In order to improve the interpretability of such studies, Gresham and Foster and Ritchey (1979) have suggested the use of multivariate procedures such as factor analysis to determine the relevant dimensions underlying diverse variables. This strategy has not yet been used in SPS outcome research.

Use of self-evaluated measures of affective and cognitive dimensions relevant to the enhancement of interpersonal competence

A related issue has to do with the conceptually limited range of outcome variables used for evaluation of SPS programs. For the most part studies have included two categories of dependent variables: measures of ICPS skills, based on hypothetical-reflective or analogue performance; and relatively global measures of social behaviour from the perspective of

peers, teachers or trained observers. Relatively little
attention has been paid to mediating variables which may lie
between the presumed beginning point of SPS skill acquisition
and end point of interpersonal adjustment and popularity. Ladd
and Mize (1983) have pointed out that a variety of individual
motivational, inferential and personality characteristics may
disrupt the sequential progression from development of relevant
conceptual skills to observed generalization and maintenance in
the child's natural environment. Investigation of such internal
variables requires the use of self-report or structured
interview techniques as they are, at best, indirectly evident
via observational measures (Karoly, 1977).

Several cognitive and affective dimensions have been
identified as important to social functioning. A child's
emotional state, and specifically his or her level of anxiety,
may potentially inhibit skillful performance despite adequate
knowledge of appropriate strategies (Ladd, 1984; Rotheram, 1980;
Van Hasselt et al, 1979). Although there is some evidence that
this may be most true for isolated as opposed to rejected
children (Rubin et al., 1984), there is a need for further
empirical investigation of the specific role of anxiety and its
relationship to other measures of interpersonal adjustment.

A second factor which may be important to social competence
is a child's confidence in his or her abilities to resolve
interpersonal difficulties and subsequent attributions for
success or failure (Asher, 1983; Durlak, 1983). This has

51

received empirical attention in terms of such cognitive variables as perceived self-competence (Harter, 1982), locus of control (Thomson-Rountree & Woodruff, 1982) and learned helplessness (Goetz & Dweck, 1980). Perhaps the best summary term is social self-efficacy (Wheeler & Ladd, 1982). The latter authors have developed a measure of this variable and found it to be postively correlated with self-concept, sociometric status, teacher's ratings and, of particular note given the above comments, negatively correlated with anxiety (Wheeler & Ladd, 1982). These authors recommend that social self-efficacy be included in subsequent social skills training programs.

Lastly, it is worth considering children's knowledge of assertive versus aggressive and submissive responses (Deluty, 1981a, 1983; Rotheram, 1980). Self-reported assertiveness has been an integral aspect of social skills training with adults but has only recently received attention with respect to children. While children's self-report measures have been criticized because of their susceptability to demand characteristics (Michelson, Sugai et al., 1983), recent instruments have been shown to have adequate psychometric properties including correspondance with sociometric status, relevant personality characteristics and teacher's ratings of adjustment (Deluty, 1979; Matson, Rotatori & Helsel, 1983; Michelson & Wood, 1982). Furthermore, these measures permit determination of children's interpersonal response style and ability to discriminate between specific socially desirable and

52

undesirable behaviours and may therefore be sensitive to
intervention impact in a manner not permitted by other
assessment modalities.

The above variables have been included in some SPS
evaluations. Ollendick and Hersen (1979) found that social
skills and problem solving training decreased anxiety and
increased internal locus of control amongst delinquents. Tellado
(1984) also found greater internality and increased self-esteem
following secondary SPS training. Amongst primary prevention
programs with younger children, positive treatment effects have
been found for locus of control (McClure et al., 1978;
Thomson-Rountree & Woodruff, 1982) but not self-esteem or
anxiety (Weissberg, Gesten, Rapkin et al., 1981). Rotheram
(1980) reported that a social skills training package including
problem solving decreased passivity on a self-report measure of
assertiveness. Michelson, Mannarino et al. (1983), however,
found such effects for a behavioural skills program but not for
SPS training. Self-efficacy has not been included in primary SPS
programs to date. Bierman and Furman (1984), however, have
included this variable in a study of a secondary behavioural
skill training with and without a peer involvement component.
Interestingly, increased self-efficacy was only found for those
conditions which included peer involvement, leading the authors
to suggest that change on this dimension may only occur in those
programs where all children are involved, rather than just those
with identified social difficulties. This would appear

supportive of primary prevention approaches.

Although the above research is limited and difficult to compare there does seem to be sufficient empirical and conceptual support for the inclusion of these cognitive and emotional variables in primary SPS evaluations. This would include examination of their relationship with each other and wit': traditional outcome measures as well as determination of possible change following intervention.

Individual differences as predictors of treatment response

As a final point, the existing SPS literature tells us very little about the nature of those children who do, and do not, respond to intervention. Asher (1983) has estimated that between fifty and sixty per cent of children benefit from social skills training. Although this is an acceptable success rate it clearly leaves a significant number of children unaffected. This lack of predictive data has been identified as a major problem with children's social skills interventions (Ladd & Mize, 1983; Conger & Keane, 1981) as well as with training in other forms of cognitive and behavioural self-management (Copeland & Hammel, 1981; Karoly, 1977). As Rubin and Krasnor (1983) point out, both descriptive and intervention investigations of children's social competence have focussed on nomothetic data to the exclusion of idiographic information. This is an important issue as it is unlikely that all children idenfified as experiencing interpersonal difficulties necessarily have ICPS deficits or

will benefit from SPS training. Pellegrini and Urbain (1985) have noted that the ICPS process may vary in children differing in demographic characteristics, developmental level or severity of social maladjustment. Alternatively, these authors note, the process may be relatively constant but have different implications for different types of children. Thus a socially adjusted child may not experience serious difficulties despite limited alternative-thinking skills in view of his or her reliance on generally adaptive strategies. The aggressive child, however, is likely to experience rejection given an inability to generate secondary alternatives when their initially inappropriate behaviour results in conflict or rebuff.

There have been some indications as to the type of social skills intervention most appropriate for different groups of children. Rose has suggested that SPS training may be most appropriate for impulsive and aggressive children (Rose, 1983). This is supported by Krasnor and Rubin's (1983) observations that rejected children tend to exhibit agonistic and impulsive behaviour and a less flexible, adaptive problem solving style, while socially withdrawn children are characterized by more submissive behaviour and lack of confidence rather than deficient ICPS skills. In general; social skills programs have been most frequently been conducted for, and had the most success with, neglected as opposed to rejected children (French & Tyne, 1982). Unfortunately, the rejected or aggressive child is at greater risk of subsequent psychopathology and social

maladjustment than the withdrawn or isolated child
(Schwartz-Gould, Wunsch-Hitzig & Dohrenwend, 1980), thus
rendering the preventive utility of such programs questionable.
It should be noted that claims as to the appropriate match
between treatment and subjects remain speculative in the absence
of empirical investigation of the efficacy of intervention
approaches with different groups of children.

. Determination of differential treatment outcome is further
hampered by variation in the criteria used to identify those
children experiencing social difficulties resulting in the
probable heterogeneity of subjects both between and within
studies (Conger & Keane, 1981). In many cases, subjects are
selected on the basis of a single measure and described in
categorical terms which convey little information as to the
specific nature and severity of individual adjustment problems
(Hobbs, Moguin, Tyroler & Lahey, 1980). Coie, Dodge and
Coppotelli (1982) revealed the oversimplicity of a dichotomous
distinction between popularity and unpopularity in their
identification of five sociometric groups of children differing
in both behaviour and peer status. Similarly, Gresham (1981), on
the basis of a factor analysis on sociometric ratings and
behavioural observations, concluded that these measures tap
independent dimensions of social competence. Even such an
apparently straightforward behavioural distinction as
aggressiveness versus shyness may be misleading. In their
epidemiological examination of the predictive utility of

teacher's ratings Kellam and Brown (1982) found that these dimensions were not necessarily independent in their prediction of subsequent maladjustment and identified a particular subgroup which they labelled shy-aggressive, that included attributes characteristic of both.

Although primary SPS programs are not confronted with these subject selection problems, they will nonetheless be serving a population which is heterogeneous in both degree and type of adjustment. The need to determine individual characteristics which are predictive of outcome is therefore important in order to modify training techniques and content so they are maximally efficient and effective. Ultimately, this will allow the identification of those subgroups of children unlikely to respond to primary SPS programs and requiring more specific, intensive interventions. This is not possible on the basis of existing primary outcome research. As Pellegrini and Urbain (1985) have pointed out, an overall positive treatment effect may represent improvement in generally competent children while leaving their less socially adept peers unaffected, thus exacerbating the gap between them. Alternatively, it is conceivable that socially competent children will exhibit little gain while less popular children catch up in their cognitive and behavioural social skills. Although little data is available, there is some support for the former possibility. Kirschenbaum (1979) reported on an early intervention program in which children were assigned to treatments of varying intensity as a

function of the severity of maladjustment. While the program was globally effective, children exhibiting the greatest dysfunction benefited least despite more comprehensive provision of service.

There has not been any research on predictors of primary SPS outcome, however there are some illustrative examples using conceptually related interventions and populations of children. In an analogue examination of self-instructional training, Copeland and Hammel (1981) found that, in general, partial correlations between subject characteristics and change were significant for the control but not the experimental group. The authors interpreted this as indicating that treatment served to wash out the effects of individual variation. Lochman and Lampron (1983) calculated regression equations for aggressive males receiving either no treatment or combinations of problem solving and goal setting treatment. Without intervention, the subjects who exhibited the most spontaneous improvement had the highest initial self-esteem and alternative thinking skills. Amongst intervention subjects, those with the highest pre-treatment disruptive behaviour and rate of somatic complaints and lowest problem solving abilities, self-esteem and social acceptance demonstrated the most change. Hartman (1979) compared the efficacy of an eclectic treatment package including stress management and assertiveness training with adolescents divided into four groups along dichotomous dimensions of psychological vulnerability and situational stress. In general, the greatest improvement was demonstrated by subjects classified

as the most vulnerable on the basis of low self-esteem, unassertiveness and high anxiety. These studies differ in research design and are of indirect relevance to primary SPS research but do provide some indication of the design and value of efforts to determine those factors which are linked to optimal therapeutic outcome. Given the myriad of cognitive, behavioural, demographic and personality variables that may be related to SPS effectiveness, the most reasonable initial strategy would seem to be examination of the predictive relationship between participants' pre-treatment scores on outcome variables and change.

Summary

The current research was designed in order to address the above issues with respect to the range and relationship of treatment outcome varibles, the appropriateness of statistical procedures and the determination of individual differences in intervention outcome. Briefly stated, the present study involved the delivery of a primary SPS program based on the Rochester curriculum (Weissberg, Gesten, Liebenstein, Schmid & Hutton, 1980). The practicality and effectiveness of the program was examined in a comparison between trained elementary school-aged children and untrained controls. In addition to this attempt to replicate previous findings (e.g. Weissberg, Gesten, Carnrike et al., 1981), an effort was made to rectify prior methodological difficulties by including conceptually relevant measures which have not been examined in previous outcome research and, through

more finely-tuned statistical procedures, to enhance the interpretability of findings. Lastly, the predictive relationship between pre-treatment levels and outcome was independently calculated and compared for control and experimental subjects. The following hypotheses were investigated:

Hypothesis I

School children in a community setting receiving social problem solving training will demonstrate greater improvement in social competence than children not receiving such training.

This prediction will be tested using multiple measures of emotional, behavioural and social-cognitive functioning assessed from the perspective of the subjects, their parents and their teachers. These will include variables used in previous SPS evaluations, as well as variables such as social self-efficacy and self-reported assertiveness which have not been previously investigated as measures of change.

Determination of outcome will be expanded to include an examination of underlying factors, as opposed to nominal variables. Confidence in findings will be further increased by the use of more fine-grained statistical analyses.

Independent determinations of the predictive relationships for treated and untreated children will reveal a significantly different pattern of change between the two conditions.

Subsequent examination of the predictive equations for the treated subjects will allow a preliminary description of the characteristics of those children who exhibited the greatest change as a result of social problem solving intervention.

CHAPTER II

METHOD

Subjects

Participants in the current research were 211 Grade 3 and 4 students of both sexes enrolled in regular classes in the public school system. Subjects ranged in age from eighty-six to one hundred and thirty-four months and attended one of two classes in four different schools. This particular age group was selected because its social hierarchy is still relatively flexible (Asarnow, 1983). Furthermore, these children typically possess the social and cognitive capacities necessary for social problem-solving skill training (Spivack et al., 1976).

The schools were located in East Vancouver, a lower- and middle-class urban area containing a wide variety of ethnic groups and family structures. The four schools participating in the research were chosen on the basis of expressed administrative interest and consistency in terms of student characteristics, population stability and class structure. The two classes included within each school were selected on the basis of teacher interest and willingness to participate in either the Intervention or Control condition. Both conditions were included within each school based on the reasoning that this would not only provide more meaningful statistical comparisons but also encourage administrative support and

increase cooperation with data collection. Informed parental consent for participation in the project was received for all subjects. A prototype consent form is presented in Appendix A.

Measures

There were two primary criteria for selection of dependent variables in the present research.

First, measures were sought which could provide representative coverage of the dimensions empirically and theoretically important in the progression from skill acquisition to interpersonal adjustment. These included variables representative of three overlapping families of constructs: subjective awareness of social problem solving strategies and prosocial options, interpersonally relevant affective and cognitive dimensions, and direct observations of positive and negative adjustment in natural settings.

Second, psychometrically sound measures were selected which could be applied to a large sample in a school setting. Relevant considerations included minimal disruption of classroom routine, item content with a reading and conceptual level appropriate to the age of the children and assessment procedures which would allay fears of possible stigmatization and personal intrusion. Thus all outcome variables relied on either group administration or evaluation of individual subjects by teachers or parents. The resulting measures included the following:

1. <u>Problem</u> <u>Solving</u> <u>Abilities</u> <u>Scale</u> (PSAS) (Weissberg, Gesten, Carnrike et al, 1981)

   This is a forced-choice, twelve item self-report measure designed to assess awareness of adaptive interpersonal problem-solving strategies. Children are required to select a response to a typical social situation, e.g., "When I'm in trouble there is usually ONLY ONE WAY/MORE THAN ONE WAY to make things okay." A child is credited for selecting the option that reflects better social problem-solving, resulting in a maximum possible score of twelve. Although there is little published information with respect to it's psychometric properties, this measure was seen as valuable as it was developed in conjunction with the intervention curriculum used in the current research. Furthermore, children trained in social problem-solving improved on this variable as well as on structured interview and simulated behavioural measures of interpersonal-cognitive problem-solving (Weissberg, Gesten, Carnrike et al, 1981), while scores for untreated subjects remained essentially unchanged thus providing indirect support for the reliability and validity of this measure.

2. <u>Children's</u> <u>Action</u> <u>Tendency</u> <u>Scale</u> (CATS) (Deluty, 1979)

   This is a self-report, forced-choice measure of specific responses to thirteen interpersonal situations (e.g.being falsely accused, ridiculed by peers, entering a new situation, etc.). derived from situational analysis with a normal sample of children. Subjects are required to select either an aggressive,

assertive or submissive response from three pairs of options for each situation. Each child therefore receives a separate, covarying score on each of the following dimensions: Aggression (CAG), Assertion (CAS) and Submissiveness (CSU). The author reported adequate split-half reliability (CAG: $r = .77$, CAS: $r = .63$, CSU: $r = .72$) and stability over four months (CAG: $r = .48$, CAS: $r = .60$, CSU: $r = .57$) for each of the scales. Acceptable concurrent validity was established in a comparison of CATS scores with both teacher and peer ratings. CATS aggressive and assertive scores successfully distinguished between public school subjects and a clinically aggressive sample, thus demonstrating clinical utility and discriminant validity. Subsequent research (Deluty, 1982), found significant correlations between scale scores and independent behavioural observations in a naturalistic setting. Lastly, and of particular importance to the SPS intervention used in the current research, CATS scores have been found to be correlated with the quality of alternative solutions generated when faced with hypothetical social situations (Deluty, 1981c).

3. Self-Efficacy Scale for Social Skills in Children (CSEF) (Ollendick, 1982)

This is a self-report measure of confidence and competence in a variety of social situations. Children are required to rate their degree of certainty that they would be able to respond appropriately to nine difficult interpersonal situations on a scale ranging from 1 (Not sure at all) to 5 (Really sure),   .

65

e.g."How sure are you that you could get children your age to be your friend?". Although this is an experimental measure and additional psychometric properties are still being determined, the author reports a test/retest reliability of .74 and internal consistency of .85 (T. H. Ollendick, personal communication, December 28, 1983).

4. Trait Anxiety Measure for Children (CAI) Spielberger, 1973)

This is a twenty-item self-report measure of anxiety. Children are required to indicate whether a variety of affective, somatic and cognitive indices of chronic arousal occur "hardly-ever", "sometimes" or "often". Alpha reliabilities of .78 and .81 have been reported for males and females respectively. Adequate concurrent validity was established by the author in comparison with existing measures of anxiety. This measure has received extensive research and clinical use, including examination of problem-solving·interventions (e.g. Weissberg, Gesten, Rapkin et al, 1981).

5. Self-Control Rating Scale (SCRS) (Kendall & Wilcox, 1979)

This is a thirty-three item rating scale completed by the teacher for each child in his or her classroom. Raters are required to indicated the presence of various disruptive, impulsive or inattentive behaviours on a seven-point severity scale. Adequate concurrent validity was established by the authors on the basis of comparisons with behavioural observations and performance on a test of cognitive impulsivity. An internal consistency of .98 and test-retest reliability of

.84 were reported indicating adequate homogeneity and stability. Their factor analysis yielded one major factor, labeled cognitive-behavioural self-control. This measure successfully discriminated between a normal sample of children and those referred for self-control training thereby demonstrating clinical predictive utility. Lastly, this measure proved sensitive to change in a subsequent intervention study with impulsive children (Kendall & Wilcox, 1980). It is worth noting that the cognitive problem-solving program included in this latter study is conceptually and procedurally similar to the intervention package used in the current research.

6. <u>Child-Behaviour Rating Scale</u> (CBRS) (Weissberg, Gesten, Carnrike et al, 1981)

This is a twenty-eight item rating scale of interpersonal and behavioural adjustment completed by the teacher for each child in his or her classroom. The authors developed this battery from two existing psychometrically sound teacher-rating measures: the Classroom Adjustment Rating Scale (Lorion, Cowen & Caldwell, 1975), which focuses on social and behavioural maladjustment, and the Health Resources Inventory (Gesten, 1976), a measure of social and behavioural competence. Specific items were selected on the basis of their perceived relevance to social problem solving and the strength of loadings as a result of factor analyses of each measure. The resulting battery has three sections: (a) problem behaviours rated on five-point scales of increasing severity; (b) competence behaviours rated

on five-point scales of increasing adjustment; and (c) global
seven point ratings of likeability and school adjustment.

Multiple factor analyses of this measure (SPS Core Group,
1980) yielded consistent factor structures which were used to
derive subscale scores in the current research. The competence
and maladjustment sections of the CBRS each yield a summary
score and three factors scores. The maladjustment section
produces the following variables: Total Problems (TP),
Acting-Out (TACT), Shy-Anxious (TSHY) and Learning Problems
(TL). The competence section produces the following variables:
Total Competence (TC), Frustration Tolerance (TF),
Gutsy-Assertive (TG) and Peer Sociability (TS). Including the
two global ratings of likeability (TLK) and adjustment (TAD),
the CBRS therefore results in ten overlapping variables for each
child.

7. Parent Behavior Rating Scale (PR) (Cowen, Huser, Beach &
Rappaport, 1970)

This is a subsection of the Parent Attitudes Test (Cowen et
at, 1970) and consists of a twenty-three items reflective of
general adjustment in childhood. Each child's parents are
required to indicate the presence and severity on a four point
scale of common behavioural problems. Internal consistency of
.83 and test-retest reliabilities ranging from .57 to .72 over
six months were reported by the authors. Adequate concurrent
validity was established in comparison with peer and teacher
ratings and the measure successfully discriminated between

68

adjusted and maladjusted children. Factor analysis yielded a single factor interpreted as disruption of household routine.

In summary, seven different measures were used, yielding eighteen dependent variables. Instruments are presented in Appendix B.

Procedure

Once schools and classes had been selected, teachers were instructed in the completion of rating scales. An emphasis was placed on the importance of accurate reporting and it was stressed that results would be confidential and in no sense reflect on teacher competence. Parental consent forms and the Parent Rating Scale were sent home accompanied by a description of the project. In those cases where there some question of English reading ability a notice was included in the parent's native language requesting that they seek assistance with translation. All forms were numerically coded in order to ensure confidentiality. The principle investigator administered the self-report measures on a group basis. Children were told that their responses would be used to help find out how children got along with each other and were encouraged to be as honest as possible, as there were no right or wrong answers. Collection of pre-treatment data took place in early 1984 with post-treatment evaluation occurring fourteen weeks later, following completion of training with the Intervention subjects.

Classes within each school were assigned to either the Intervention or Control condition on the basis of curriculum schedules and the need to match across conditions on the variables Grade, age, and sex ratio. Children in the Control condition underwent pre- and post-treatment assessment concurrent with the assessment of the children in the Intervention condition; these subjects did not receive any direct intervention. Rather, teachers of these classes continued with traditional classroom management strategies including referral to auxiliary school support personnel when needed.

Children in the Intervention condition received training in interpersonal-cognitive problem solving as outlined in the Social Problem Solving Manual of Weissberg, Liberstein, Schmid & Hutton (1980). This particular treatment package was selected because of its applicability to latency-age students in terms of conceptual skills, the reading level of materials and participants' concentration spans. In addition, the manual has been modified by the authors on the basis of prior pragmatic considerations and empirical trials and is explicit enough to allow replication of treatment.

This program consisted of forty-two structured lessons ranging from twenty to thirty minutes in length. The curriculum is divided into five major units: "feelings in ourselves and others" (6 lessons), "problem-sensing and identification" (6 lessons), "generation of alternative solutions" (7 lessons), "consideration of consequences" (8 lessons) and "integration of

70

problem-solving behaviours" (15 lessons). At the heart of the program is the teaching of eight sequential problem-solving steps: (a) "Look for signs of upset feelings"; (b) "Say exactly what the problem is"; (c) "Decide on your goal"; (d) "Stop and think before you act"; (e) "Think of as many solutions as you can"; (f) "Think ahead to what might happen next"; (g) "When you have good solution, try it"; and (h) "If your first solution doesn't work, try again". There is an emphasis on the behavioural application of these skills in hypothetical and real situations. Training techniques include group discussion, instructional games, didactic presentation, modelling, self-monitoring, coaching and behavioral rehearsal and feedback. In an effort to maximize generalization and maintenance of skill acquisition, children are additionally instructed to use problem-solving techniques during the non-instructional periods. Similarly, teachers are encouraged to use curriculum-based techniques in their daily classroom management e.g."problem-solving dialoguing".

Training occurred three times a week for fourteen consecutive weeks.All lessons were taught by the principal investigator. Teachers were present throughout the intervention periods and assisted with aspects of some lessons, under the guidance of the author e.g. small group discussion and role playing. The three children denied parental consent to participate in the treatment program were sent to another classroom to engage in alternative activities during

instructional periods. Following completion of the intervention
program and all data collection, teachers in the intervention
condition were asked to complete a questionnaire with respect to
program presentation and content, and their interest in its
continuation as part of the regular school curriculum (Appendix
C).

Statistical Analysis

Analyis of all data was based on a hierarchical design, with
the factors being the two experimental conditions, the eight
classrooms nested within the conditions, and subjects within
classrooms within conditions. A pre-treatment analysis of
variance was performed in order to ascertain the equivalency of
conditions prior to intervention. The determination of the
relationship between variables was based on a Principle
Components factor analysis. The resulting orthogonal factor
structure was used in subsequent analyses. Evaluation of
treatment impact was based on analyses of variance on factor
change scores. Multiple regression equations were calculated for
each condition which were then compared with each other and with
the pooled sample in order to examine differences in predictive
accuracy. Lastly, stepwise multiple regression was performed in
order to determine those pre-treatment factors which best
predicted change.

RESULTS

Description of the Sample

Nineteen children in the original sample of 211 children were excluded from statistical analysis due to fifty per cent or greater data loss. The remaining 192 cases are described in Table 1 with respect to age, sex and sample size for each experimental condition. Descriptive pre-treatment and post-treatment statistics for each of the twenty dependent variables are presented for each condition in Appendix D.

In order to determine the similarity of children within the eight classes and two experimental conditions an analysis of variance was performed on each pre-treatment variable. Results of these analyses are summarized in Table 2.

From this it was apparent that there was significant variability between classes, particularly when teachers were required to rate subjects (Child Behaviour Rating Scale and the Self-Control Rating Scale). In addition, in terms of differences between conditions, control subjects were significantly higher than treatment subjects on two Child Behaviour Rating Scale variables: Total Competence ($F(1,6)=8.84$, $p=.025$) and the Gutsy-Assertiveness factor score($F(1,6)=15.36$, $p=.008$). There were no group differences in age or sex.

Table 1

Description of Subjects in Each Condition

Condition	Size	Mean Grade	Mean Age	Sex
Treatment	99	3.5	109.8 months	48 males 51 female
Control	93	3.5	109.6 months	46 males 47 females
	192			

Table 2

Two-way Analysis of Variance of Pre-treatment Data across
Conditions and Classes

Variable	Source	Sum of Squares	df	Mean Square	F	p
Age	Condition	1.5	1	1.5	0.0009	.98
	Cl/Cond	10182.2	6	1697.0	41.8	<.0004
	Ss/Cl/Cond	7426.6	183	40.5		
Sex	Condition	0.005	1	0.005	0.034	.86
	Cl/Cond	0.8	6	0.13	0.52	.79
	Ss/Cl/Cond	47.1	184	0.26		
Parent	Condition	24.54	1	24.54	1.07	.34
Rating	Cl/Cond	138.06	6	23.01	0.21	.97
Scale	Ss/Cl/Cond	18892.40	175	107.96		
Self-	Condition	1021.25	1	1021.25	0.72	.43
Control	Cl/Cond	85041.75	6	14173.62	10.01	<.0004
Rating	Ss/Cl/Cond	260486.99	184	1415.69		
Aggression	Condition	3.47	1	3.47	0.09	.7
(CATS)	Cl/Cond	245.17	6	40.86	1.55	.16
	Ss/Cl/Cond	4863.17	184	26.43		
Assertion	Condition	0.65	1	0.65	0.05	.84
(CATS)	Cl/Cond	82.25	6	13.71	1.75	.11
	Ss/Cl/Cond	1439.97	184	7.83		
Submission	Condition	0.21	1	0.21	0.32	.59
(CATS)	Cl/Cond	160.06	6	26.67	1.90	.08
	Ss/Cl/Cond	2584.85	184	14.05		
Problem-	Condition	3.23	1	3.23	0.27	.62
Solving	Cl/Cond	72.19	6	12.03	4.13	.0006
Ability	Ss/Cl/Cond	533.33	183	2.91		
Self-	Condition	65.62	1	65.62	1.15	.32
Efficacy	Cl/Cond	343.84	6	57.31	1.86	.09
	Ss/Cl/Cond	5657.03	184	30.74		
Subjective	Condition	217.09	1	217.09	3.88	.096
Anxiety	Cl/Cond	335.68	6	55.95	1.54	.17
	Ss/Cl/Cond	6681.20	184	36.31		
Acting	Condition	0.31	1	0.31	0.01	.94
Out	Cl/Cond	345.03	6	57.50	3.45	.003
(CBRS)	Ss/Cl/Cond	3411.89	184	16.67		

Table 2 (Continued)

Variable	Source	Sum of Squares	df	Mean Square	F	p
Shy	Condition	2.80	1	2.80	0.14	.72
Anxious	Cl/Cond	116.70	6	19.45	2.70	.015
(CBRS)	Ss/Cl/Cond	1323.39	184	7.19		
Learning	Condition	9.69	1	9.69	0.95	.37
Problems	Cl/Cond	61.53	6	10.25	2.87	.01
(CBRS)	Ss/Cl/Cond	656.30	184	3.57		
Total	Condition	26.47	1	26.47	0.11	.75
Problems	Cl/Cond	1425.43	6	237.57	4.36	.0004
(CBRS)	Ss/Cl/Cond	10027.77	184	54.50		
Frust.	Condition	352.79	1	352.79	4.26	.085
Tolerance	Cl/Cond	496.61	6	82.77	3.31	.004
(CBRS)	Ss/Cl/Cond	4605.53	184	25.03		
Gutsy	Condition	116.76	1	116.76	15.36	.008
Assertive	Cl/Cond	45.60	6	7.60	1.34	.24
(CBRS)	Ss/Cl/Cond	1043.23	184	5.67		
Soc.	Condition	83.13	1	83.13	5.79	.053
(CBRS)	Cl/Cond	86.14	6	14.36	2.86	.011
	Ss/Cl/Cond	924.00	184	5.02		
Total	Condition	2276.13	1	2276.13	8.81	.025
Competence	Cl/Cond	1550.81	6	258.47	2.53	.02
(CBRS)	Ss/Cl/Cond	18776.73	184	102.05		
Likable	Condition	6.34	1	6.34	0.69	.44
(CBRS)	Cl/Cond	55.04	6	9.17	8.28	<.0004
	Ss/Cl/Cond	203.87	184	1.11		
Adjust.	Condition	12.74	1	12.74	1.27	.30
(CBRS)	Cl/Cond	60.03	6	10.00	4.26	.0005
	Ss/Cl/Cond	432.20	184	2.35		

CATS: Children's Action Tendency Scale

CBRS: Child Behaviour Rating Scale

Examination of the relationships between variables were based on a series of Principal Component analyses carried out on pre-treatment scores. Missing data in these analyses were replaced with estimates based on a stepwise regression procedure using up to two correlated variables (BMDP Manual, 1983). Furthermore, as the initial analyses had revealed considerable variability between the classes (confounding the determination of the relationship between the variables), class differences were removed. This was done by transforming raw data for each variable into deviation scores about the class means. Six Principal Component analyses were performed, with the maximal number of factors successively increased from four to nine.

An optimal solution yielding seven orthogonal factors was chosen after visual inspection of resulting factor structures. This solution accounted for seventy-nine per cent of the total variance and all eigenvalues exceeded .9. Rotated factor loadings and eigenvalues of this solution are presented in Table 3. Unrotated factor loadings are presented in Appendix E.

Factor 1, which I have labelled Judged Acting-Out, appeared to reflect teachers' evaluations of visible behaviour problems. It shows substantial positive loadings for teachers' ratings of poor self-control (TSC), learning problems (TL), disruptive behaviour (TACT) and total problems (TP). Negative loadings were obtained for ratings of frustration tolerance (TF), likability

Table 3

Variable	Factor						
	1	2	3	4	5	6	7
Acting Out	.906	0	0	0	0	0	0
Total Problems	.866	-.346	0	0	0	0	0
Self Control	.866	0	0	0	0	0	0
Frustration Tolerance	-.825	.342	0	0	0	0	0
Adjustment	-.809	.283	0	0	0	0	0
Total Competence	-.693	.635	0	0	0	0	0
Learning Problems	.664	-.430	0	0	0	0	0
Likability	-.616	.433	0	0	0	0	0
Gutsy Assertive	0	.870	0	0	0	0	0
Shy Anxious	0	-.866	0	0	0	0	0
Sociability	-.545	.684	0	0	0	0	0
Subjective Aggression	0	0	.970	0	0	0	0
Subjective Submission	0	0	-.815	0	0	0	0
Subjective Assertion	0	0	-.659	0	0	0	0
Subjective Anxiety	0	0	0	.854	0	0	0
Problem Solving	0	0	0	-.658	.317	0	0

Table 3 (Continued)

Variable				Factor			
	1	2	3	4	5	6	7
Self Efficacy	0	0	0	0	.904	0	0
Age	0	0	0	0	0	.952	0
Parent Rating	0	0	0	0	0	0	.896
Sex	0	0	-.373	.289	-.444	0	-.348
Eigenvalue	5.41	3.13	2.33	1.31	1.26	1.13	1.13

The above factor loading matrix has been rearranged so that columns appear in decreasing order of variance explained. Loadings less than .25 have been replaced by zero.

Factor 1: Observed Acting-Out

Factor 2: Observed Social Competence

Factor 3: Aggression

Factor 4: Social Anxiety

Factor 5: Social Confidence

Factor 6: Age

Factor 7: Home Adjustment Difficulties

(TLK), peer sociability (TS), overall competence (TC) and
adjustment difficulties (TAD).

Factor 2, labelled Judged Social Competence, also primarily
reflected teacher's observations. The largest loading was the
Gutsy-Assertive variable (TG), with additional moderate positive
loadings by frustration tolerance (TF), positive adjustment
(TAD), likability (TLK), sociability (TS) and total competence
(TC).Shy-Anxious behaviour (TSHY) had the highest negative
loading followed by total problems (TP) and learning
difficulties (TL). This factor would therefore seem to measure
observations of a child's capacity to function adaptively in
interpersonal situations.

Factor 3, labelled Aggression, was predominantly loaded on
self-reported aggressive (CAG) versus assertive (CAS) and
submissive (CSU) responses on the Children's Action Tendency
Scale. It therefore reflects the child's tendency to respond
with antisocial rather than prosocial or passive responses to
hypothetical social situations. It is also interesting to note
that there was a secondary moderate loading by sex, with boys
more likely to respond aggressively than girls.

Factor 4, Social Anxiety, was positively loaded on
self-rated anxiety (CAI), with a moderate, negative relationship
to problem-solving ability (CPS). This suggests that arousal
level is inversely related to perceived ability to independently
resolve social problems. Sex also loaded on this factor, with

girls scoring higher.

Factor 5, <u>Social Confidence</u>, was predominantly loaded on
self-reported social self-efficacy (CSEF), with a secondary
positive relationship to self-reported problem-solving awareness
(CPS). Thus it would seem that this factor is a reflection of
both the child's self-assurance and adaptive flexibility in the
face of difficult interpersonal situations. As with the factor
of Aggression, there was a positive loading by sex with males
being higher.

Factor 6, <u>Age</u>, was loaded almost exclusively on by
chronological age.

Factor 7, <u>Home</u> <u>Adustment</u> <u>Difficulties</u> was primarily loaded
on by the Parent Behaviour Rating Scale (PR). This factor
appears to reflect parental perceptions of disruptive behaviour
at home. Once again, sex had a modest loading on this factor,
with boys exhibiting more disruptive behaviour.

The Effects of Treatment

The examination of differences between experimental
conditions as a function of intervention was based on change
scores derived in the following manner. Difference scores were
calculated for each dependent variable by subtracting
pre-treatment from post-treatment scores. These difference
scores were then standardized by dividing by the pre-treatment

standard deviation of each variable. Lastly, these variable difference scores were transformed to factor change scores by multiplying them by factor score coefficients derived from the above seven factor rotated solution. These factor change scores were used in all subsequent analyses. The decision to focus on factor change scores rather than variable difference scores was based on the conceptual clarity of the factors.

Missing post-treatment data was not statistically replaced, rather, subjects with missing data were excluded from the relevant analysis. As a result, these analyses were based on a smaller sample than were prior analyses. In addition, Factor 6, Age, was excluded from subsequent examination due to its manifest insensitivity to the impact of treatment. It should be recalled that the experimental groups did not differ in age. Descriptive statistics for each factor change score, by experimental condition, are presented in Table 4. Note that classrooms are nested within treatment condition. The corresponding analyses of variance are presented in Table 5.

There were significant differences in change between classrooms on three factors: Factor 1, Judged Acting Out, ($F(6,154)=9.63$, $p<.0025$); Factor 2, Judged Social Competence, ($F(6,154)=8.76$, $p<.0025$); and Factor 5, Social Confidence, ($F(6,154)= 3.26$, $p=.0048$). The first two factors primarily relied on teachers' observations of positive and negative social behaviour, while the last factor depended on children's self-report.

Table 4

Descriptive Statistics for Factor Change Scores by Classroom
and Intervention Condition

Source	Group	Mean	Standard Deviation
Factor 1	Treatment	-.30	.69
	Class 1	-.16	.68
	Class 2	.42	.48
	Class 3	-.54	.65
	Class 4	-.55	.57
	Control	-.22	.59
	Class 5	-.21	.49
	Class 6	-.25	.47
	Class 7	-.58	.40
	Class 8	.30	.64
Factor 2	Treatment	.29	.83
	Class 1	.32	.83
	Class 2	.23	.69
	Class 3	.23	.55
	Class 4	.33	.71
	Control	.33	.73
	Class 5	.37	.68
	Class 6	.32	.82
	Class 7	.29	.56
	Class 8	.33	.68
Factor 3	Treatment	-.41	.82
	Class 1	-.42	.74
	Class 2	-.44	.71
	Class 3	-.39	.85
	Class 4	-.41	.87
	Control	-.34	.86
	Class 5	-.36	.78
	Class 6	-.34	.10
	Class 7	-.32	.91
	Class 8	-.36	.64

Table 4 (Continued)

Source	Group	Mean	Standard Deviation
Factor 4	Treatment	.23	.12
	Class 1	.24	.97
	Class 2	.25	.89
	Class 3	.26	.13
	Class 4	.19	.14
	Control	.35	.92
	Class 5	.37	.58
	Class 6	.32	.58
	Class 7	.37	.10
	Class 8	.32	.10
Factor 5	Treatment	.90	.97
	Class 1	.88	.12
	Class 2	.89	.95
	Class 3	.89	.89
	Class 4	.94	.79
	Control	.82	.92
	Class 5	.83	.11
	Class 6	.88	.89
	Class 7	.78	.83
	Class 8	.81	.62
Factor 7	Treatment	.32	.96
	Class 1	.33	.12
	Class 2	.32	.58
	Class 3	.34	.96
	Class 4	.31	.87
	Control	.35	.84
	Class 5	.34	.82
	Class 6	.35	.90
	Class 7	.34	.88
	Class 8	.35	.81

Difference scores are based on standardized deviations about the pre-treatment class mean and are calculated by subtracting pre-treatment from post-treatment scores.

Table 5

ANOVA Summary of Factor Change Scores

Variable	Source	Sum of Squares	df	Mean Square	F	p
	Condition	.24	1	0.24	0.08	.79
Factor 1	Cl/Cond	18.49	6	3.08	9.63	<.0025
	Ss/Cl/Cond	48.92	154	0.32		
	Condition	6.02	1	6.02	1.43	.28
Factor 2	Cl/Cond	25.22	6	4.20	8.76	<.0025
	Ss/Cl/Cond	73.77	154	0.48		
	Condition	19.55	1	19.55	24.14	.0027
Factor 3	Cl/Cond	4.85	6	0.81	1.17	.33
	Ss/Cl/Cond	106.69	154	0.69		
	Condition	53.23	1	53.23	24.70	.0025
Factor 4	Cl/Cond	12.93	6	2.15	1.84	.10
	Ss/Cl/Cond	180.51	154	1.17		
	Condition	28.79	1	28.79	1.63	.017
Factor 5	Cl/Cond	16.24	6	2.71	3.26	.0048
	Ss/Cl/Cond	128.15	154	0.83		
	Condition	2.16	1	2.16	11.29	.015
Factor 7	Cl/Cond	1.15	6	0.19	0.22	.97
	Ss/Cl/Cond	131.8	154	0.85		

In terms of change as a result of experimental condition, there were significant per comparison differences between treated and untreated children on four of the six underlying factors. Children receiving the intervention program exceeded control subjects in the reduction of Factor 3: Aggression, $(F(1,6) = 24.20, p=.0027)$, Factor 4: Social Anxiety, $(F(1,6) = 24.70, p=.0025)$, and Factor 7: Home Adjustment Difficulties, $(F(1.6) = 11.29, p=.015)$. The treatment group exhibited an increase on Factor 5: Social Confidence, $(F(1,6) = 10.63, p=.017)$. Comparisons between conditions were not significant for Factor 1: Judged Acting Out, $(F(1,6) = .08, p = .79)$ and Factor 2: Judged Social Competence, $(F(1,6) = 1.43, p = .28)$. This likely reflects the extensive variability between classes on these factors.

In order to correct for the probability of an inflated Type I error rate due to multiple comparisons, a multistage Bonferroni procedure was performed (Larzelere & Mulaik, 1977). The familywise probability level was set at .05, necessitating a significance level of .0083 for individual comparisons. Only the condition differences on Factor 3 and Factor 4 met this criterion. It should be noted, however, that had a familywise error rate of .06, rather than .05, been used both Factor 5 and Factor 7 would have reached significance. The differences between conditions on these factors must therefore be considered as suggestive.

In order to determine whether factor change could be predicted on the basis of pre-treatment status, multiple regression procedures were performed for each factor change score using class membership and pre-treatment factor scores as predictors.

The first step was to determine whether there were significant differences in predictive accuracy between the two conditions. Multiple Regression analyses of factor change scores were therefore computed separately for each treatment condition. Residual mean squares of each condition were then compared to determine the extent to which regression equations differed from one another. The results of these comparisons are presented in Table 6. It is apparent that none of the comparisons reached an acceptable level of significance, thereby indicating that neither condition allowed a more accurate determination of the degree of change in a particular factor.

The next step was to determine whether regression equations calculated for each experimental condition were substantially different from the regression equations calculated for the entire sample, irrespective of condition. Residual mean squares for each condition were therefore pooled and compared with the overall mean square residual for the entire sample. These analyses were again performed for each factor change score. Results of these analyses are summarized in Table 7. The only

Table 6

Between Condition Comparison of Multiple Regression
Equations for Change on each Factor

Variable	Source	Mean Square Residual	df	F	p
Factor 1	Control	0.209	61		
	Treatment	0.315	79	1.51	.094
Factor 2	Control	0.441	61	1.57	.06
	Treatment	0.281	79		
Factor 3	Control	0.675	61	1.56	.06
	Treatment	0.434	79		
Factor 4	Control	0.721	61		
	Treatment	0.873	79	1.21	.44
Factor 5	Control	0.525	61	1.03	.88
	Treatment	0.508	79		
Factor 7	Control	0.743	61		
	Treatment	0.762	79	1.03	.92

Table 7

Comparison of Multiple Regressions Pooled Across Conditions with the Overall Multiple Regression Ignoring Experimental Condition

	Source	Residual Mean Square	df	Residual Sum of Squares	$F_{(7,140)}$	p
Factor 1	Treatment	.315	79	24.88		
	Control	.209	61	12.72		
	Overall	.280	147	41.10	1.86	NS
	Error	.269	140			
Factor 2	Treatment	.281	79	22.23		
	Control	.441	61	26.92		
	Overall	.390	147	57.25	3.30	.01
	Error	.351	140			
Factor 3	Treatment	.434	79	34.26		
	Control	.675	61	41.16		
	Overall	.564	147	82.94	1.99	NS
	Error	.539	140			
Factor 4	Treatment	.873	79	69.00		
	Control	.721	61	44.00		
	Overall	.847	147	124.55	2.05	NS
	Error	.807	140			
Factor 5	Treatment	.508	79	40.12		
	Control	.525	61	32.02		
	Overall	.511	147	75.07	0.82	NS
	Error	.515	140			
Factor 7	Treatment	.762	79	60.18		
	Control	.743	61	45.32		
	Overall	.781	147	114.83	1.77	NS
	Error	.754	140			

$$F = \frac{< SS_{Overall} - (SS_{Treatment} + SS_{Control}) > / < df_{0} - (df_{T} + df_{C}) >}{< (SS_{Treatment} + SS_{Control}) / (df_{T} + df_{C}) >}$$

significant difference was in Factor 2: <u>Observed Social Competence</u> ($F(7,140) = 3.30$, $p=.01$). In no other case was there a significant improvement in the accuracy of prediction when each condition was considered apart from the overall sample.

Given these findings it was apparent that there was no substantive advantage to selecting the predictors of factor change for each experimental condition and that predictors should be based on the entire sample regardless of condition. Accordingly, multiple regression equations were calculated for each factor change score using initial factor scores as predictors. Class membership was not included in these analyses as the large variability between classes tends to obfuscate prediction and would be of little conceptual interest or interpretive value. Determination of the subsets of predictor variables was based on the squared multiple correlation with each factor change score. Selection of optimal predictors was based on the frequency of occurrence of a particular variable as subsets of increasing size were generated. Thus the 'best' subset of predictors included those factor scores which recurred most often in the subsets. The optimal predictor subsets selected for change on each factor are presented in Table 8.

It is evident that, in every case, change in a particular factor is predominantly a function of lower initial scores on that factor, with the other factors mainly serving to enhance the prediction. Change on Factor 1: <u>Judged Acting-Out</u>, was determined by higher parental ratings of adjustment

Table 8

'Best' Subset of Predictors of Change for each Factor for
the Entire Sample

Dependent Variable	R-Squared	Adjusted R-Squared	Variables	Coefficient
Factor 1	0.145	0.135	Factor 1	-0.180
			Factor 7	0.104
Factor 2	0.220	0.205	Factor 2	-0.248
			Factor 5	0.142
			Factor 7	-0.123
Factor 3	0.210	0.200	Factor 3	-0.368
			Factor 5	0.111
Factor 4	0.296	0.279	Factor 1	0.123
			Factor 4	-0.538
			Factor 5	-0.157
			Factor 7	-0.095
Factor 5	0.408	0.401	Factor 4	-0.075
			Factor 5	-0.562
Factor 7	0.107	0.096	Factor 1	0.111
			Factor 7	-0.263

difficulties. Change on Factor 2: <u>Judged</u> <u>Social</u> <u>Competence</u> was also predicted by higher initial social confidence and fewer adjustment difficulties according to parents. Higher social confidence also determined changes on Factor 3: <u>Aggression</u>. Differences on Factor 4: <u>Social</u> <u>Anxiety</u> were predicted by initially higher observed acting-out and lower social confidence and parental ratings of maladjustment. Change on Factor 5: <u>Social</u> <u>Confidence</u> was similarly a function of lower initial social anxiety. Lastly, changes on Factor 7: <u>Home</u> <u>Adjustment</u> <u>Difficulties</u> were predicted by higher initial acting-out according to teachers.

CHAPTER IV

DISCUSSION

Overview of Factor Analytic Findings

Prior to a consideration of intervention outcome, the results of the factor analysis of pre-treatment variables merit discussion. Previous research has emphasized the heterogeneity of children's social functioning (Foster & Ritchey, 1979; Gresham, 1981; Hops, 1983). It was therefore anticipated that examination of the relationship between variables used in the present study would result in a multifactorial solution with variability between factors arising due to several considerations. First, factors were expected to differ as a function of the personal perspective forming the basis of a particular variable; in other words parents, teachers and children would evaluate aspects of social functioning differently. Second, in view of the use of variables tapping both positive and negative social adjustment, some differentiation between these two global dimensions was foreseen. Third, little overlap was expected between measures of observed behaviour and self-appraised cognitive and emotional attributes, although a strong interrelationship was expected for variables within these two domains. Fourth, subject characteristics such as age and sex were anticipated to have differential contributions to each of the factors. Lastly, although particular subgroups of individuals were not

identified, it was hoped that the resulting factor structure
would be consistent with existing typologies of interpersonal
adjustment, such as withdrawn versus aggressive children.

Consistent with expectations the resulting rotated factor
solution did indicate that factors differed as a function of:
the evaluator, the measurement of social adjustment versus
maladjustment, and cognitive-emotional versus behavioural
dimensions. Thus factors such as Judged Acting-Out and Observed
Social Competence depended on teacher's observations of positive
and negative social behaviour; Aggression, Social Anxiety and
Social Confidence collectively reflected subjective appraisal of
prosocial knowledge and affective status with some
differentiation between expectations of adaptive versus
maladaptive performance, and Home Adjustment Difficulties were
indicative of parental perceptions of negative behaviour. The
failure to derive a simpler factor structure is not surprising
as the variables themselves differed, not only in terms of the
basic constructs measured, but also in the specific situations
and settings evaluated.

The current multifactorial findings are also consistent with
prior research. In an examination of social competence in
preschoolers, Hops and Finch (1982) found that peer, parent and
teacher judgments were independent, with the highest correlation
with observed positive behaviour obtained for teacher ratings.
Similarly, Matson, Esveldt-Dawson and Kazdin (1983) found
relationships between multiple measures completed by the same

94

data source, but a lack of correspondence between teacher and peer ratings of popularity and social skills as well as behavioural observations of role-play performance. Lastly, Gresham (1981) found little overlap between peer behavioural ratings, peer friendship nominations and blind observations despite relative stability within measures over three separate assessment periods.

It is nonetheless possible that the current lack of factor convergence may be due to design flaws such as inadequacy of the measures or differential perspective biases. Although some of the measures used in this research require further validational investigation, (such as the Children's Self-Efficacy Scale), the majority have been shown to possess adequate psychometric properties (e.g. Deluty, 1979; Kendall & Wilcox, 1979; Spielberger, 1973), thus suggesting that factor variance was not due to psychometric weaknesses of the evaluation instruments. A second possible explanation for the present independence of factor sources is that children, teachers and parents were differentially biased by situational demands unique to each setting and population. Teacher ratings, for example, may have been subject to inappropriate or stereotypical selection criteria or may have been distorted for fear that these observations might be seen as potentially critical of their classroom management skills (Michelson, Sugai et al., 1983). It should noted that such differential ratings need not be indicative of distortion, but may well be valid within the

context of a particular classroom. In other words, a certain behaviour, which would be considered to be inappropriate by a teacher who has relatively strict classroom expectations, might legitimately be seen as acceptable by another teacher with less stringent classroom behavioural requirements. It is also possible that the children's self-report measures may have been distorted by the desire to present in an unrealistically positive light, in view of research which has demonstrated that children's subjective report and behavioural role-play performance changes as a function of instructional set (Kazdin, Esveldt-Dawson & Matson, 1983). Although these possibilities cannot be completely ruled out, they seem improbable given discussion of the need for honesty and objectivity prior to selection of schools and classes, the voluntary nature of involvement by all participants, the standardized administration of measures and the assurances of confidentiality with respect to individual reports. In addition, variable means and variance are within the range found in previous research (e.g. Deluty, 1979; Kendall & Wilcox, 1979, Weissberg, Gesten, Rapkin et al, 1981), suggesting that there was no distortion idiosyncratic to this exploration.

A more serious criticism of the current research is that some potentially important measures of children's social functioning were not considered, thereby resulting in conceptually limited or skewed factors. More specifically, the present study did not include individual measures of sociometric

status, hypothetical-reflective ICPS reasoning or blind observations of specific behaviours. These variables were excluded for essentially pragmatic and ethical reasons. Individual evaluation of ICPS skills and blind behavioural ratings by an impartial observer were viewed by school personnel as impractical and overly disruptive to classroom functioning, particularly with such a large sample of schoolchildren. Principals and teachers also expressed concerns about the intrusiveness of, and possible scapegoating and parental complaints, which might arise from peer ratings of popularity. Although this reluctance may not have been justified, the cooperation of educational personnel and parents was deemed to be of utmost importance for the completion of the planned intervention and evaluation. Therefore, the measures which were included relied on self-report or ratings by individuals with existing familiarity with the children. These instruments not only provide relevant information in their own right but are additionally sensitive, albeit indirectly, to those facets of interpersonal competence which are traditionally evaluated via more direct methods. Deluty (1981c), for example, found that children's subscale scores on the CATS were significantly related to their ICPS abilities in terms of the quantity and quality of solutions generated in response to hypothetical problems. Similarly, Wheeler and Ladd (1982) found that social self-efficacy was correlated with peer ratings of social influence and popularity.

Lastly, although observational, sociometric and hypothetical-reflective measures may well provide important information about children's interpersonal functioning, they are different, rather than inherently better, instruments and are subject to their own unique limitations including insensitivity to change, poor ecological validity and inadequate or unknown psychometric properties. These points and related issues with respect to the assessment of children's social competence are discussed in recent reviews (Butler & Meichenbaum, 1981; Foster & Ritchey, 1979; Michelson, Sugai et al., 1983). The absence of additional measures must nonetheless be acknowledged as a shortcoming of the current research and should be included, when feasible, in future factor analytic investigations.

In the absence of obvious demonstrated alternatives, the most likely explanation for the multifactorial solution derived in the current research is that the factors do reflect separate dimensions of interpersonal functioning. Furthermore, the contention that children may exhibit marked individual differences in particular aspects of interpersonal functioning despite similar sociometric status is well documented in the literature (Asher & Renshaw, 1981; Ladd, 1984; Rubin & Krasnor, 1983). French and Tyne (1982), for example, suggest that neglected children are characterized by the absence of endearing attributes which would promote peer affiliation, while rejected children not only lack such qualities but also engage in a number of aversive behaviours leading to negative rather than

98

neutral perception by their peers.

The complexity of the derived factor structure limits the extent to which children might be identified in terms of their membership in particular subcategories, such as social withdrawl or aggression, which would allow greater specification of their interpersonal competence. Such dimensions are somewhat more evident when factors are considered individually, rather than collectively. For example, a factor such as Aggression would seem to allow differentiation between aggressive and non-aggressive children. Similarly, high Social Anxiety likely reflects shyness while high Social Confidence is more characteristic of assertive children. Although it is tempting to suggest that a 'typical' child within a hypothetical category of socially adjusted or maladjusted children would exhibit a readily identifiable pattern type across factors, this would probably be an oversimplification given the independence of factors which was found, even within the perspective of a particular rater. While some authors have claimed that individual assessment instruments successfully discriminate between different types of social adjustment (Deluty, 1979; Michelson & Wood, 1982), the present findings suggest that such groupings may be inappropriate, particularly if a multi-method approach is used. This categorical complexity is illustrated by Coie et al.'s (1982) identification of five different groups of children on the basis of cluster analysis of sociometric and behavioural measures. Children sharing common measurement

characteristics did not necessarily conform to expected overall patterns of social functioning. One group in particular, which the authors labeled as 'controversial', were similar to socially rejected children in terms of peer-identified aversive behaviour, but paradoxically resembled popular children in terms of their perception by their peers as group leaders. Similarly, it is worth recalling Kellam and Brown's (1982) identification of a sample of subjects who exhibited both shy and aggressive behaviour. Such children do not readily fit within existing descriptive typologies which typically differentiate between these two dimensions.

Examination of the individual pattern of factor scores obtained by a particular child may allow for more accurate description of the type of interpersonal difficulties which he or she is experiencing. An individual may, for example, have adequate knowledge of prosocial alternatives (low Aggression), but lack the social problem solving awareness and self-efficacy (low Social Confidence) to implement them effectively thereby resulting in peer neglect (low Judged Social Competence). Alternatively, a child might behave in a way considered by his parents to be quite appropriate (low Home Adjustment Difficulties) but lack awareness of normatively acceptable options (high Aggression), resulting in a perception of disruptive, antisocial behaviour by others (high Judged Acting-Out). Such an explanation is, of course, speculative pending replication of the current factor structure and further

100

consideration of the structure and interpretability of the factors themselves.

Description of the Factors and Their Significance

The first factor, Judged Acting-Out, appears to be a relatively straightforward reflection of teacher's perceptions of disruptive classroom behaviour. Unlike the factor analysis of the CBRS performed by the SPS Core Group (1980), from which subscale scores were derived in the current research, there was no differentiation between learning problems, acting out and shy-anxious behaviour. Rather, the former two variables were collapsed in this factor while the latter was not represented. While it is hardly surprising that children who were high on this factor were also seen as less likable by their teacher, this does raise the possibility that teachers may be unwittingly reinforcing a child's unpopularity amongst peers. The high positive loading of teachers ratings of self-control is consistent with the suggested interpretation of this factor as well as providing convergent evidence for the validity for this measure.

Judged Social Competence is best considered to reflect teachers perceptions of prosocial behaviours given the prominent loadings of the Gutsy-Assertive, Sociability and Overall Competence variables derived from the CBRS. This factor represents the obverse of the preceding factor in terms of the

101

negative loadings of many variables which loaded positively on Observed Acting-Out. The high negative loading of the Shy-Anxious variable suggests that this factor reflects interpersonal adapatation, rather than simply the absence of disruptive behaviour.

The above two factors are consistent with those derived in previous analyses of classroom observational measures. Khan and Hoge (1983) used observational measures to determine the validity of two independent factorial dimensions of a teacher-judgement measure of social competence. Although these authors found evidence of both convergent and discriminant validity of these factors this was compromised by significant sex differences which failed to support the uniform utility of the measure. Matson, Rotatori et al. (1983) found two factors, labeled Inappropriate Assertiveness/Impulsivity and Appropriate Social Skills, in their factor analysis of a teacher's rating scale of children's assertiveness. An analysis of a behavioural rating scale by Rickel and Burgio (1982) resulted in three factors: Sharing-Cooperative, Aggressive and Self-Oriented Solitary. Although prior research has suggested that boys exhibit more disruptive behaviour than girls (Kendall & Wilcox, 1979) while girls are seen as more socially competent (Thomson-Rowntree & Woodruff, 1982), this was not observed in the present findings. The current results also provide only moderate support for Gesten's (1976) claim that a child's score on the competence subscales of the CBRS could be used to predict

102

his or her degree of maladjustment. Although there is a reasonably consistent negative relationship between the two in the current factor structure, a child who does not exhibit behavioural maladjustment will not necessarily be seen as socially competent, primarily due to the high negative loading of the shy-anxious variable on the latter factor. This is in keeping with prior discussion of the distinction between those children who display agonistic behaviour and those who fail to demonstrate confident prosocial skills (Coie et al., 1982; Rubin & Krasnor, 1983).

The third factor, Aggression, reflects a child's recognition and selection of aggressive versus non-aggressive responses on the CATS. The tendency for assertiveness and submission scores to coalesce in contrast to the aggression score is consistent with Deluty's (1979) correlational findings in his report on the development of this measure. It may be argued that the Aggression factor, which is based on self-reported responses to hypothetical situations, is a questionable index of actual social behaviour and may be particularly susceptible to the social desirability influences. This is countered, however, by the author's report that CATS subscale scores were significantly correlated with corresponding peer and teacher ratings of behaviour (Deluty, 1979) and blind behavioural ratings in a natural setting (Deluty, 1982). The tendency for boys to be higher on the Aggression factor derived in the current research is also consistent with Deluty's (1979) finding of a sex

difference on the CATS. This point merits further comment. In investigations of the personality and behavioural correlates of the CATS, Deluty (1981b) found that assertiveness scores were associated with popularity, self-esteem and behavioural adjustment for boys but not for girls. These observations led the author to suggest that sex-role stereotyping within a girl's social milieu may result in the perception by both self and others of assertive behaviour as inappropriate and 'unfeminine' (Deluty, 1981a). Deluty goes on to point out that intervention programs must consider remediation of the social environment as well as the individual.

The inverse relationship between anxiety and problem-solving awareness in the fourth factor, <u>Social Anxiety</u>, appears to provide support for the role of anxiety as an important variable in children's ability to solve interpersonal difficulties. The emergence of this factor as independent from Social Confidence is unexpected, particularly given Wheeler and Ladd's (1982) finding that social self-efficacy was negatively correlated with anxiety. This may be due to the measures used. The anxiety measure included in the current research taps 'trait' arousal; it is therefore possible that this factor reflects a general sense of personal uncertainty beyond specific social situations. This contention might be explored by including more interpersonally-specific measures such as the social discontent subscale of the Perceived Self-Competence Scale (Harter, 1982) in future research. Although anxiety has been recognized as a

potentially important inhibitory factor in effective social functioning, particularly for withdrawn and isolated children (Ladd, 1984; Rubin & Krasnor, 1983) its relationship to social problem solving has not previously been explored. The current findings suggest that children with high levels of emotional and somatic tension are also restricted in their ability to engage in flexible, independent consideration of interpersonal response alternatives. This possibility has been raised by Deluty (1981a) who suggests that irrational, self-defeating cognitive sets may elicit anxiety which, in turn, inhibits socially effective behaviour. In light of this author's previously cited comments with respect to differential sex-role expectations as to appropriate social behaviour, the current finding that girls tended to be higher on the Social Anxiety factor is noteworthy and suggests that fear of criticism may interfere with their autonomous interpersonal coping.

The fifth factor, Social Confidence, is a function of social self-efficacy with a secondary positive contribution by social problem-solving awareness. Although the relationship between these two variables has not been previously examined, this relationship seems logical; children with greater confidence in their interpersonal effectiveness should also be able to use a greater range of social strategies to resolve difficulties. This assertion is supported by Goetz and Dweck's (1980) finding that children who attributed social rejection to personal incompetence displayed more ineffective and disrupted problem

solving strategies than those children who attributed rejection to situational factors. The current indications of sex differences on this factor in favour of males are inconsistent with Wheeler and Ladd's (1982) findings of essential equivalence between boys and girls in social self-efficacy. These studies are difficult to compare because of differences in the measures and populations examined. Nonetheless, the current findings support the preceding comments with respect to sex-typed socialization practices which may discourage assertive behaviour in girls.

The emergence of Age as an independent factor without significant loadings on other factors suggests that this variable did not contribute to factor differences. Although this is in keeping with some prior research which did not find age differences in social competence within this age group (e.g. Richard & Dodge, 1982), it is inconsistent with others (e.g. Gottman et al., 1975). It should be noted that the latter research focused on grade comparisons while chronological age in months was considered in the present study. Given the limited age range currently covered and the overlap of age across grades. it seems unlikely that there would be significant age differences in the variables currently used.

The last factor, Home Adjustment Difficulties, primarily seems to reflect parental perceptions of disruptive behaviour at home. Given the current finding that boys tended to be higher on this factor, it is worth pointing out that Cowen et al (1970)

found that, although parental perceptions were significantly correlated with those of teachers for girls, this was not the case for boys. These authors interpreted these findings as suggesting that behaviours of boys which may be tolerated at home may be considered unacceptable at school. These comments once again support Deluty's (1981a, 1981b) prior speculations as to differential behavioural expectations for boys and girls, particularly in the home environment.

Treatment Outcome

Anecdotal Reports

The perceptions of the program by participants in the intervention condition merit consideration before examining quantitative findings. The children in all four classes appeared to enjoy the program. They particularly looked forward to, and seemed to benefit from, task requirements such as behavioural rehearsal and instructional games. On a number of occasions students spontaneously recounted instances of successful problem solving at home and school. These not only served to reinforce the utility of training but also provided real life exemplars for classroom discussion and role-playing. Despite some concerns about the time necessary for completion of evaluation materials, teachers were also supportive of the project, commenting favourably on their students' acquisition of skills and concepts. Teachers also reported that they found class management strategies such as SPS dialoguing useful in both

social and academic situations. These observations were
bolstered by the results of post-treatment questionnaires. On an
incremental scale of one to seven teachers rated the program an
average of 6.4 in terms of its relevance to their students and
6.2 in terms of the organization and clarity of content. Perhaps
most importantly, they indicated an average of 4.6 on a five
point scale their interest in having such a program established
as part of the regular school curriculum. There was a generally
shared consensus that both impulsive and withdrawn children
benefited from intervention; the former learning greater
self-control and appropriate self-expression while the latter
gained in confidence and acceptance by their peers. On the basis
of these impressions and following post-treatment data
collection, teachers in the control condition were invited to
observe a sample SPS lesson covering many of the intervention
strategies in condensed form. The Vancouver School Board also
authorized the preparation of an instructional videotape using
program participants for future staff inservice and class use,
thus indicating administrative receptivity.

Quantitative Findings

Although these observations are encouraging and important,
demonstration of intervention effectiveness obviously depends on
statistical findings. To summarize the results of outcome
evaluation: children receiving Social Problem Solving training
exhibited significantly lower Aggression and Social Anxiety than
control subjects with suggestive evidence of improved Social

<u>Confidence</u> and decreased <u>Home Adjustment Difficulties</u> for treated children. Condition differences were not found for <u>Observed Acting Out</u> and <u>Judged Social Competence</u>. Classrooms showed significantly different patterns of change on the latter two factors as well as on <u>Social Confidence</u>. It will be recalled that these statistical analyses involved the transformation of standardized variable difference scores into factor change scores, on the basis of the preceding factor structure. Analyses of variance were then performed on each of the six relevant factors with appropriate corrections for the nesting of classes within experimental condition. The positive and negative results for each individual factor will be discussed prior to comparing overall findings with those of related primary SPS research.

The failure to detect group differences on the two factors primarily reflecting teacher's observations of classroom behaviour, <u>Observed Acting Out</u> and <u>Judged Social Competence</u>, has several possible explanations. The most obvious possibility is that social problem-solving skills were either irrelevant, or not applied, to classroom behaviour. This possibility cannot be discounted and is in keeping with the results of some prior research (Allen et al., 1976; Sharp, 1981; Urbain, 1980). This explanation is inconsistent, however, with other studies (Rotheram, 1980; Weissberg, Gesten, Carnrike et al., 1981; Winer, Hilpert, Gesten, Cowen & Schubin, 1982) as well as current indications that the program had a positive impact on those factors which were dependent on the children's subjective

ratings. It is also in contrast to anecdotal comments from both teachers and students as to the program's practical utility. Furthermore, although differences between conditions must be considered tentative, the change on the <u>Observed Home Adjustment</u> factor would suggest that trained children were able to implement skills in a situation removed from the classroom setting, on the basis of ratings by parents who were relatively naive as to program content.

A second explanation for the current findings is that the teacher adjustment measures were insensitive to change, at least with respect to social behaviour. As noted above teacher ratings in general have been criticized because of psychometric inadequacy and possible idiosyncratic distortion (Foster & Ritchey, 1979; Spivack & Swift, 1973; Van Hasselt et al., 1979). Nonetheless, a number of authors have reported that teacher rating scales may be used to accurately identify relevant behaviours and discriminate between adjustment and maladjustment (Hops & Finch, 1982; Janes & Hesselbrock, 1978; Kellam et al., 1982). The measures used in the current research have adequate published psychometric properties (Gesten, 1976; Lorion et al., 1975) and have proven sensitive to change as a result of intervention (Gesten et al, 1982; Pedro-Carroll & Cowen, 1985; Weissberg, Gesten, Carnrike et al., 1981, Weissberg, Gesten, Rapkin et al, 1981).

The third and most probable explanation for the failure to find an overall treatment impact on teacher's ratings has to do

with the highly significant nested classroom effect. The large magnitude of this variability and the resulting error term severely limited the possibility of detecting differences between treatment conditions. Despite their failure to statistically incorporate nested class variance, it is worth noting that such heterogeneity was also characteristic of the Rochester research (e.g. Weissberg, Gesten, Carnrike et al, 1981). It should be noted that 'class' in the context of these analyses represents the behavioural ratings of a particular teacher on his or her students, thus confounding rater with subjects. Although it is conceivable that there were significant differences in behaviour between students in each class this seems improbable given pretreatment equivalence in socioeconomic background, sex distribution, parental adjustment ratings, and self-reports of assertiveness, aggression, submissiveness, self-efficacy and anxiety. It would therefore seem that class variance mainly reflects differences in teachers' perceptions of their students over time.

Although the nesting of class within condition makes it impossible to directly compare teachers, it is possible that a particular teacher's rating of change may have been influenced by factors such as increased sensitization towards behaviour problems, resistance to the program or a fixed opinion with respect to certain students. Similar concerns were raised by Bolstad and Johnson (1977) in their examination of the external validity of teacher's rating scales. These authors found a

significant overall positive correlation between such measures
and observed behaviours by blind raters thus supporting the
convergent validity of teachers ratings. There was, however, a
tendency for some teachers to make judgments about particular
students with little regard for their actual behaviour, relying
instead on irrelevant characteristics such as appearance and
SES, or idiosyncratic information such as the occurrence of
highly salient but infrequent behaviour. These observations do
not negate the present lack of demonstrated treatment
effectiveness nor do they rule out the utility of teacher's
observations. Rather, they suggest that school-based
intervention programs need to be sensitive to the particular
characteristics and expectations of individual teachers as these
may influence outcome.

Explanatory Significance of the Findings

The greatest treatment effects in the current research were
primarily found on the factors reflecting interpersonal
confidence and prosocial skill awareness. These findings provide
support for the value of SPS training, as well as bolstering the
hypothesized relevance of such variables and their amenabilty to
intervention. Although there has been little prior primary SPS
evaluation research using these particular measures, it is worth
considering current findings with respect to those social skills
programs which have included related measures. It should be
noted that interpretation of discrepant outcomes is rendered
difficult because of differences in subject characteristics,

treatment strategies and dependent variables.

The improvement on the Aggression factor, which was primarily based on self-report, indicates that treated subjects developed a greater awareness of prosocial response alternatives to hypothetical situations, particularly in terms of a reduction in the endorsement of antagonistic options. Subjective assertiveness measures have been used in some previously cited intervention evaluations. Rotheram, for example, (1980) reported a decrease in self-reported passivity, with a corresponding reduction on a behavioural measure of submissiveness, for subjects receiving a comprehensive social skills package with a major SPS component. This is in contrast, however, with Michelson, Mannarino et al.'s (1983) failure to find change on this variable for children receiving SPS training.

The superiority of trained subjects over controls on the Social Anxiety factor indicates a reduction in self-reported arousal and an increase in problem solving awareness. This is consistent with Weissberg, Gesten, Carnrike et al's (1981) findings with respect to the Problem Solving Abilities Scale but inconsistent with their earlier work which failed to produce changes in trait anxiety (Weissberg, Gesten, Rapkin et al, 1981). This discrepancy is difficult to explain given similarities between the Rochester program and the current research, however it may lie in previously discussed differences in statistical procedures. (These will be discussed in greater detail later). However, the current findings are in keeping with

Ollendick and Hersen's (1979) report of decreased anxiety in a sample of delinquents following social skills training which included a major problem-solving component. Pedro-Carroll and Cowen (1985) also found a decrease in trait anxiety for children of divorce who were involved in a primary prevention program with several sessions devoted to SPS.

The improvement of treated subjects on the Social Confidence factor suggests that such children saw themselves as more likely to be able to successfully implement independent problem resolution strategies. This is a particularly noteworthy finding as the present research is the first reported intervention program using a social self-efficacy scale as an outcome measure. Some studies have included measures such as self-worth, perceived competence or locus of control, however. Such variables would appear logically related to the Social Confidence factor, as one would expect children who are high on this dimension to feel good about themselves and their personal ability to determine the outcome of socially problematic situations (Wheeler & Ladd, 1982). There are reports of SPS training resulting in improved self-esteem (Rotheram, 1980; Tellado, 1984) and a shift towards internality (Allen et al, 1976; McClure et al., 1978; Ollendick & Hersen, 1979). These are contradicted, however, by reports of a failure to find change on related variables (Gesten et al., 1982; Pedro-Carroll & Cowen, 1985; Weissberg, Gesten, Rapkin et al, 1981) or a return to baseline at follow-up despite initial group differences (Spence

& Spence, 1980).

Lastly, the observed trend towards improvement on the Home Adjustment Difficulties factor is consistent with the two published SPS evaluations including parental measures of adjustment (Michelson, Mannarino et al, 1983; Pedro-Carroll & Cowen, 1985). The former authors found that both behavioural social skills and SPS training produced within-group reductions in problematic home behaviour, unlike an attention-placebo control condition. Although the behavioural group exhibited further improvement at follow-up, no between-group differences were found.

Comparison of the Findings with other SPS Research

The present results would appear to be consistent with the conclusions reached in prior reviews of SPS programs as a primary prevention strategy (Combs & Slaby, 1977; Pellegrini & Urbain, 1985, Urbain & Kendall, 1980). In general, such interventions have led to improved skill acquisition, with mixed evidence of associated behavioural change (e.g. Allen et al, 1976; Winer et al., 1982). Perhaps the most relevant comparison is with the work of the Rochester Social Problem Solving Group, the developers of the current intervention program and some of the measures used. These researchers have typically found evidence of skill acquisition, but inconsistent findings with respect to teacher-rated adjustment on the CBRS. It will be recalled, for example, that both Gesten et al. (1979) and

Weissberg, Gesten, Rapkin et al. (1981) found some evidence of decreased teacher-rated adjustment for treated subjects at post-testing, whereas, in subsequent reports, Weissberg, Gesten, Carnrike et al. (1981) observed the opposite findings following treatment, and Gesten et al. (1982) noted improved adjustment at follow-up evaluation by teachers blind to original group membership. The current findings are essentially consistent with these findings in terms of measures of skill acquisition, but at odds with results on teacher-rated variables in that, although there was no evidence of deterioration of trained versus untrained children, nor was there any indication of differential improvement.

Although the possibility that the discrepancy between present and prior outcomes is a function of idiosyncratic differences in samples or program implementation cannot be definitively ruled out, this seems unlikely given the careful adherence to the SPS program manual and the apparent similarity in settings, population characteristics and research design. A more probable explanation for the somehat disparate conclusions reached in the current research and the Rochester studies lies in the statistical procedures on which conclusions were based. Firstly, it will be recalled that the Rochester research may be faulted for inappropriate statistical treatment of the nesting of classes within experimental conditions, thus resulting in inaccurate significance levels. The current outcome analyses were performed with appropriate error terms which accounted for

nesting. Secondly, these authors failed to allow for the possibility of the increased risk of Type I errors when performing multiple analyses. In constrast, the current research reported both comparison-wise and family-wise significance levels. Lastly, the Rochester group has typically found improvement on some, but not all, observational measures thereby limiting conclusions of program efficacy. This is particularly problematic when variables are given equivalent interpretive weight despite their significant intercorrelation and derivation from a common outcome battery. Gesten et al. (1982), for example, failed to find any group differences at follow-up on the Total Problems subscale of the Classroom Adjustment-Rating Scale, which would seem to be one of the most important indices of behavioural change. Although similar criticisms can be raised with respect to the current research given the inclusion of multiple outcome measures, this concern is mitigated by the examination of change on independent factor scores which allow for the relationship between variables.

Methodological Issues

The current research is subject to several methodological criticisms which potentially restrict any conclusions as to intervention efficacy. The first of these arises as a result of significant pre-treatment differences between conditions on two variables from the CBRS: Total Competence and Gutsy-Assertiveness. This raises the possibility that the findings of differential change between treatment and control

groups were due to unequal assignment of children to experimental conditions rather than to the intervention. On closer examination this seems improbable. Firstly, the pre-treatment differences are no longer significant when family-wise corrections for multiple comparisons are applied. Secondly, determination of outcome was based on statistical analyses of change, rather than on pre-treatment scores, thus controlling for pre-treatment differences. Lastly, both Total Competence and Gutsy-Assertiveness variable scores loaded on the Judged Social Competence factor which did not exhibit significant change as a function of experimental condition. Thus, any differences between conditions prior to intervention do not actually pose a serious methodological difficulty.

A more serious potential difficulty lies in the failure to more fully control for the role of nonspecific factors which may have differentially biased results. There are two major sources of such error in the current research design: the lack of an attention-placebo condition and the exclusion of ratings by individuals blind to group membership. In the absence of such controls it is possible that observed differences between conditions were solely a result of nonspecific influences (e.g. therapist attention, demand characteristics, expectancy for change or special group membership) rather than active treatment components. As previously discussed, inadequate consideration of nonspecifics has been one of the major criticisms raised in reviews of social problem-solving programs (Durlak, 1983, 1985;

Kirschenbaum & Ordman, 1982). Such failings have been attributed to the political, practical and ethical complexity involved in balancing methodological rigour with the ecological realities in studies based in natural settings (Cowen, 1978).

Despite recognition of the importance of these issues, neither an attention-placebo control nor blind evaluation procedure were included in the present research. This decision was based on two considerations. First, in view of the mixed results and interpretive difficulties in earlier studies, the primary goal of the current research was a replication of prior evaluation strategies, using improved statistical analyses and including previously unexamined, but conceptually important, outcome variables. Second, there was concern that attempts to introduce an attention-placebo condition and external observers would compromise acceptance of the program and evaluation within the school setting. Administrators and teachers were very reluctant to allow control children to miss approximately twenty one hours of regular instructional time to participate in a theoretically non-efficacious activity. Nor were they accepting of the presence of blind raters, who were viewed as potentially intrusive and disruptive to classroom functioning. As a result the current design involves a comparison between treatment and what might best be described as an existing alternative condition, in other words, the naturally occurring classroom management techniques used by individual teachers in the absence of systematic intervention programs. As discussed above, an

effort was made to encourage teacher objectivity and reduce possible nonspecific bias in the dependent variables by adhering to standardized instructions for both pre- and post-treatment measures, and through using voluntary participation and assurance of confidentiality for teachers and students in both conditions.

The extent to which these strategies were successful in restricting systematic bias is best addressed by examining the data. It will be recalled that there was some variabilty between classes for both pre-treatment and change scores within both conditions, particularly for variables dependent on teacher ratings. This suggests that any nonspecific factors which may have been operating were not unique to one experimental condition and therefore less likely to have differentially influenced outcome. In addition, the suggestive evidence of intervention effectiveness on the Home Adjustment Difficulties factor argues against powerful nonspecific influences, in that parents had little personal investment in outcome, were the least susceptible to instructional set or experimenter demand and were relatively unaware of the actual program content and goals, yet reported significant change. Lastly, the few problem solving evaluations which have included an attention-placebo control have found some evidence of positive intervention effects above and beyond non-specific influences (Kendall & Wilcox, 1980; Michelson, Mannarino et al, 1983; Sharp, 1981). Although these studies differed somewhat from the present

research in design and intervention strategies, they do provide some support for the current contention that differential outcome may be attributed to active treatment components. Despite the suggestion that nonspecific factors played a minimal role in determining outcome, the lack of more direct controls must be acknowledged as constraining the validity of current conclusions and remains an important issue for subsequent research.

Determination of the maintenance of change as a result of the current intervention is limited by the lack of a follow-up evaluation. This is again typical of the SPS literature, due to difficulties in tracking and regaining access to subjects in changing community settings such as schools. This is nonetheless a question of some interest, as it has been suggested that the cognitive focus of SPS programs may result in a delay between concept acquisition and the successful behavioural integration of new skills (Urbain & Kendall, 1980). This contention has received some support on the basis of follow-up evaluations of various problem solving programs (Kendall, 1981; Rotheram, 1980; Spivack & Shure, 1974; Urbain, 1980). Of particular relevance (given the similarity of the instructional curriculum to the current intervention), is Gesten et al's (1982) finding that children rated one year after intervention by teachers blind to original group membership, either improved or held their own when compared with untreated controls who typically returned to baseline despite initial improvement. These findings are

countered, however, by other follow-up studies which failed to find consistent maintenance of gains as a result of intervention (Allen et al, 1976; Michelson, Mannarino et al, 1983; Rickel et al., 1983; Spence & Spence, 1980). The primary focus of the current research was the examination of the post-treatment impact of SPS training. Although this goal met with reasonable success, the durability of change and the longer-term preventive value of this intervention program remains unknown in the absence of follow-up.

Prediction of Change

No distinct differences in regression lines were found, either between treatment and control conditions or between the pooled conditions versus the overall sample. This clearly restricts the possibility of identifying those factors which are predictive of outcome. Thus one of the most basic questions in any primary prevention program remains unanswered: the extent to which intervention is successful in bringing those children considered to be at particular risk for subsequent maladaptation up to the level of their adjusted counterparts. Although, collectively, trained subjects did demonstrate improvement in some important areas relative to controls, it is not possible on the basis of the subsequently derived predictive relationships to show that those treated children with the poorest social functioning, on the basis of pre-treatment measures, made differential gains relative to their initially more competent

122

peers. These findings are at odds with Spivack et al.'s (1976) oft-cited reports of a positive correlation between changes in social-cognitive abilities and behavioral adjustment, as well as their observation of equivalent effectiveness with both socially maladjusted and adjusted children. Despite differences in statistical methodology, the present findings are consistent with subsequent failures to replicate these original claims (Gesten et al., 1982; Kirschenbaum, 1979; Rickel et al., 1983; Weissberg, Gesten, Rapkin et al., 1981). Although there have been no prior attempts to predict the outcome of primary SPS programs, the current results are also not supportive of the differential predictive patterns suggested by related interventions with selected subgroups of children and adolescents (Copeland & Hammel, 1981; Hartman, 1979; Lochman & Lampron, 1983). These studies must be questioned, however, given the failure to examine the extent to which predictive relationships differed between conditions or increased predictive accuracy in comparison with the overall sample irrespective of experimental condition. In other words, the finding that different variables predict outcome for treated and untreated subjects is of little utility unless it can be shown that change over time could not be determined as precisely in the absence of treatment.

Another important difference between the current research and those studies which have reported discriminant prediction of outcome lies in the distinction between primary and secondary

interventions. The subjects in Lochman and Lampron's (1983) program, for example, were boys identified as most aggressive by their teachers. Subjects therefore belonged to a reasonably homogeneous sample in terms of sex and specific interpersonal difficulties. In contrast, the current research was conducted with existing classes of average children of both sexes, resulting in a much more heterogeneous sample and thereby limiting the likelihood of specifically identifying differential predictive relationships. Although such individual variance is to be expected in the classroom, this does hinder empirical demonstration of the contention that specific primary intervention strategies may be most efficacious for particular subgroups of children (e.g. French & Tyne, 1982; Rose, 1983). The present data do not permit the clear determination of those variables which would allow matching of treatment with subject characteristics, either on the basis of pretreatment relationships between variables or predictive differences between conditions.

It is worth noting, however, that treated subjects did improve more than their control counterparts on both the Aggression and Social Anxiety factors, which reflect the two extremes of interpersonal maladjustment. This provides some support for the utility of SPS training as a treatment strategy for a variety of children. Rather than suggesting that certain types of children gained as a result of treatment, the current findings would seem to indicate that change was idiographic and

likely varied as a function of individual and situational factors. These likely include such variables as the degree to which a particular child is able to cognitively integrate and behaviourally apply requisite skills and the receptiveness to new social strategies by relevant peers and adults within the natual environment. This interpretation is clearly at odds with the claim of researchers such as Copeland and Hammel (1981) that cognitive-behavioural training served to wash out the effects of individual variation.

Despite the lack of differences between conditions in regression equations, the predictors of outcome for the entire sample merit some discussion. In every regression analysis the best predictor of change was a lower initial score on the factor in question. While this may be interpreted as indicating that children naturally improve over time, a more probable explanation is statistical regression to the mean. Although the contribution to predictive accuracy of additional factors was clearly secondary, the extent to which some initially disparate measures tended to converge over time is worth noting. For example, lower pre-treatment Observed Home Adjustment and higher Social Confidence were included in the best subset of predictors of change in Observed Social Competence. It is admittedly conceivable that this apparent convergence may simply reflect a halo effect across measures; in other words, teacher's reports to parents of repeated behaviour problems at school may have influenced parental ratings. Although this cannot be ruled out,

an alternative explanation is that different aspects of social functioning became increasingly synchronous over time; thus children who lacked confidence in their own interpersonal skills and were experiencing problems at home would presumably be more likely to _appear_ increasingly less socially competent in the eyes of their teachers over the course of the school year. This must remain purely speculative in the absence of further investigation.

CONCLUSIONS

The major findings of the current research may be summarized as follows:

1. Examination of the relationship between variables reflecting childrens. thoughts, feelings and social behaviour, resulted in a multifactorial solution identifying factors which varied as a function of the perspective of the rater, the dimension measured and the degree of adjustment. Of particular interest was the factorial inclusion of self-reported evaluations of cognitive and emotional variables which have not been previously examined in an SPS outcome study. The current factor structure is consistent with prior research but must nonetheless be considered tentative pending cross-validation.

2. Children receiving primary SPS training demonstrated significant improvement on change factors reflecting reduced social anxiety and increased awareness of prosocial skills in comparison with untreated controls. There were additional indications of increased social confidence and reduced disruptive behaviour at home. No differences between treatment conditions were evident in teacher's observations of either positive or negative classroom behaviour, a finding tentatively attributed to significant rater variance. These conclusions were strengthened by the use of stringent statistical procedures. These results generally support and expand prior research using

this intervention program, but raise issues about the possible role of nonspecific and situational determinants of outcome, particularly with respect to measures of behavioural adjustment.

3. The intervention and evaluation were carried out within a school setting with a positive response from students, teachers. and administrators. Although popularity is no assurance of effectiveness, acceptance of a program is highly relevant for any classroom-based research. As Finch and Hops (1983) have pointed out, no matter how powerful an intervention may be, if it is rejected by applied personnel it can be considered to be of little value.

4. Although some predictive relationships were derived for the entire sample, it was not possible to differentially predict outcome between conditions. Thus any statement as to characteristics of those children most likely to respond positively to SPS training is based on anecdotal impressions and change on individual factors.

The present findings are encouraging with respect to the efficacy of primary SPS programs for the enhancement of social functioning in children, however confidence in these conclusions is limited by the presence of methodological shortcomings and interpretive inconsistencies. On the basis of these concerns several recommendations are offered for consideration in future research. It is suggested that both descriptive and intervention studies use a multimethod evaluation in order to include

different facets of interpersonal competence from varying sources. While the need for comprehensive coverage of relevant variables is obviously important for any research, it appears to be of particular importance in this area, in view of the lack of consensus as to the nature of social competence in children. Both current and prior findings suggest that any adequate such definition must include both covert and overt dimensions, which may differ when considered from the perspectives of significant others or of the children themselves. Furthermore, determination of competence is likely to be influenced by non-skill based characteristics such as age, sex and demographic background. As yet, no single inclusive measure of this construct exists nor, given its complexity, does it seem probable that one will emerge. Rather, it is more realistic to expect that subsequent research will allow the development of a more descriptive and specific composite of variables. The recommended inclusion of multiple assessment measures will likely make unequivocal interpretation of results difficult. In addition to the factor analyses used here, statistical procedures such as path analysis may prove useful to test hypthetical causal relationships between disparate variables.

The contention that emotional and self-evaluative variables represent important dimensions which should be included in multimethod evaluations of children's interpersonal competencies also supported by the current findings. Although it is unclear whether these are causes or consequences of behavioural or ICPS

deficits, there is increasing evidence that the discrepancy between an individual's knowledge of appropriate social strategies and his or her actual performance is a function of such factors as the selection of appropriate goals (Renshaw & Asher, 1983), inhibitory anxiety (Ladd, 1984), interpersonal confidence (Wheeler & Ladd, 1982) and attributional style (Goetz & Dweck, 1980). This was exemplified in the adult social skills literature by Schwartz and Gottman (1976) who found that unassertive individuals were typically adept at identifying effective assertive options but were unable to act accordingly due to the presence of anxiety, expectations of failure and cognitive ambivalence. In an examination of related variables in children Deluty (1983) found that males and aggressive subjects rated antagonistic options as more acceptable and socially potent than did female and both assertive and submissive subjects. Similarly, Forman (1980) found that a comparison of the cognitions of aggressive and non-aggressive children in response to hypothetical interpersonal situations revealed that the former exhibited more irrational thoughts, aggressive self-statements and negative evaluations of peers. Collectively, these findings indicate that covert cognitive and emotional phenomena represent important mediating factors in children's interpersonal functioning. In addition to their inclusion as screening and treatment outcome measures, the suggestion that such dimensions may differentiate between subgroups of socially dysfunctional children (Ladd, 1984; Rubin & Krasnor, 1983) merits further investigation.

At present multimethod evaluation is hindered by the relative paucity of normative data with respect to cognitive, emotional and behavioural aspects of children's social competence. This makes it difficult to ascertain whether a child's particular pattern of functioning is in fact deviant in comparison with his or her peers and therefore represents a deficit to be targeted for intervention. It may in fact be necessary to develop different sets of norms for populations of children differing in demographic and individual characteristics. The first, and most obvious, variable on which differences in interpersonal competence are likely to be observed is age. It is realistic to expect that social behaviours which are considered to be inappropriate within one age group will prove to be adaptive in another (Conger & Keane, 1981; Hops & Greenwood, 1981). Baker and Bukatko (1982) have derived preliminary data with respect to the value that children of different ages place on particular social skills. Similarly, Keane and Conger (1981) have provided an extensive review of developmental differences in children's communication skills. It is suggested that these data be incorporated in the planning and evaluation of social skills programs.

Secondly, although they may well be a result of differential socialization practices, there is considerable evidence of sex differences in social behaviour (Cowen et al., 1970; Deluty, 1981b; Kendall & Wilcox, 1979); thus indicating that a child's interpersonal functioning should be compared to that of children

of the same sex. Thirdly, both descriptive (e.g. Shure &
Spivack, 1978) and intervention research (e.g. Weissberg,
Gesten, Rapkin et al., 1981) has suggested that ratings of
social competence may vary for children of different cultural
and socioeconomic backgrounds. Although this may imply actual
differences in skillfulness, it is equally probable that the
standards and expectations for appropriate behaviour vary across
sociocultural groups. A related issue has to do with the
generalizability of any determination of competence across
social settings. Foster and Ritchey (1979) have pointed out that
children's behaviour is likely to vary between home and school
or in interactions with peers versus adults, a contention
supported by the current findings with respect to the lack of
correspondence between home and classroom ratings of adjustment.
It is also possible that social strategies which are
inappropriate within the larger social sphere may be considered
adaptive within a child's particular interpersonal group. This
was illustrated by Schneider and Byrne's (1984) unexpected
finding that children exhibiting aggressive behaviour were rated
as more likable by their peers amongst a sample of impulsive and
conduct-disordered boys, a phenomenon which the authors labeled
as 'identification with the aggressor'. Although it is
unrealistic to expect the development of different norms for all
possible social contexts, these observations do indicate that
the evaluation of competence must be sensitive to the unique
demands of a child's particular social milieu. Lastly, there is
a need for clarification of the types of situations which may

elicit inadequate social functioning. As discussed previously, Mischel (1984) has pointed out that maladaptive behaviour is most likely to occur when environmental demands exceed the individual's existing coping strategies. Dodge, McClaskey and Feldman (1985) have recently addressed this issue in their report on the development of a taxonomy of situations which prove the most difficult for socially rejected children.

In addition to remedying some of the previously discussed methodological weaknesses, future intervention research would benefit from more detailed description of relevant design characteristics and results. Since the initial Hahnemann reports, SPS training has been successfully applied in a variety of settings with populations differing in demographic characteristics and degree of social difficulty. Treatment programs have also varied in the duration, sequence and type of instructional techniques used. Although this diversity has been interpreted as attesting to the comprehensive utility of the SPS approach (Pellegrini and Urbain, 1985), it has made it very difficult to compare or replicate research. The current study was possible because of the Rochester group's careful and detailed description of their experimental design, program curriculum and findings. In many other studies, however, authors have provided insufficient information with respect to the characteristics of their sample, the nature of the intervention and expected outcome thus limiting any overall statement as to the most effective treatment strategies and the type of

participant most likely to benefit. Poitras-Martin and Stone (1977), for example, reported that children trained in problem-solving exhibited superiority over controls in the generation of alternative solutions. It is entirely unclear, however, whether the focus of this particular intervention was on social, personal or academic situations, thereby rendering this study inaccessible to comparison with other programs.

There is also a need for determination of the relative efficacy of SPS programs in comparison with alternative approaches to the enhancement of social competence. This is not currently possible due to the paucity of empirical treatment comparisons. One exception is the intervention study conducted by Michelson, Mannarino et al. (1983) with a sample of boys referred to a psychiatric outpatient clinic. These authors compared SPS with both behavioural skill training and an attention-placebo discussion group, on a comprehensive battery including sociometric, self-report, parent and teacher ratings, academic performance and observational measures. Both treatment groups exhibited greater within-group change from pre- to post-treatment than the control condition. Follow-up assessment revealed some superiority for the behavioural group. Although the authors interpreted these findings as indicative of the greater effectiveness of behavioural skill training this conclusion must be questioned in view of the general lack of differences between groups and the failure to demonstrate within-group change on the majority of outcome variables

including, most notably, blind behavioural observations. It is also worth noting that the SPS intervention was heavily based on Spivack and Shure's 1974 curriculum which, in contrast with subsequent programs, may be criticized for the lack of structured opportunity for the behavioural integration of cognitive skills (Rickel et al., 1983). Lastly, this research was carried out with a psychiatric population, and results may therefore be inapplicable to a non-clinical sample. This study is nonetheless to be commended in view of its design sophistication and serves as a model for further treatment comparisons.

In addition to the lack of research into alternative social skills approaches, there have also been relatively few comparisons within the SPS model in order to ascertain the optimal type, duration and sequence of training. It should be reemphasized that SPS training is not so much a specific intervention procedure as a general theoretical model which may include a number of different instructional techniques. Although there have been some experimental contrasts of different intensities and combinations of training strategies (Gesten et al., 1982; Ollendick & Hersen, 1979; Sharp, 1981), these studies have been infrequent and have varied too much in design and sample characteristics to allow any determination of the active treatment ingredients. There is also a need for comparisons of the various conceptual ingredients within the ICPS model. Pellegrini and Urbain (1985) have pointed out that the

135

enhancement of alternative thinking has been emphasized in most interventions despite the fact that much of interpersonal behaviour is relatively automatic and may not necessarily involve reflective cognitive processing. These authors have suggested that it may therefore be important for intervention programs to place a greater stress on impulse control and problem recognition skills, particularly for those children whose over-learned, but inappropriate, behaviour is likely to lead to difficulties. This latter comment points to the need for determination of the particular set of techniques best-suited to the needs of particular children. In addition to the previously discussed possibility that certain types of children may be generally more responsive to SPS programs, it is also possible that some children will require more intensive or specialized forms of SPS training in order to acquire requisite skills. This contention may partially explain Berler, Gross and Drabman's (1982) finding that learning disabled children who received social skills training failed to exhibit behavioural generalization and improved peer status. This remains speculative, however, and will only be answered by controlled comparisons of different combinations of intervention strategies with different groups of children.

SPS interventions do appear theoretically attractive as a primary prevention strategy in view of their emphasis on covert processes, such as a child's thoughts and feelings, which are presumed to mediate social competence for a variety of

individuals across a broad array of situations. This promise
remains unfulfilled however, due to both lack of longitudinal
research and methodological weaknesses in the existing studies.
Despite some short-term successes, there have not been any
empirically sound examinations of SPS programs which have
followed treated subjects for a sufficient period of time to
demonstrate a significant reduction in subsequent maladjustment
and/or increase in adaptation (Durlak, 1983, 1985). In the
absence of such data the question "prevention of what?" remains
unanswered. Although Pellegrini and Urbain (1985) have argued
that a lag is to be expected in the translation of social
problem-solving changes into improved peer status and adaptive
behaviour, the possibility of long-term deleterious impact
cannot be ruled out. This point was articulated by Lorion (1983)
in a critical review of the status of primary prevention
research.

> To **assume** (as opposed to demonstrate) that preventive
> strategies will have only positive or, at worse, neutral
> consequences represents a naive and irresponsible
> position. It is inconceivable that an intervention which
> is designed to avoid or limit the impact of a
> pathological process or to generate heretofore absent
> inter- or intrapersonal competencies could not be
> recognized as also able to cause negative outcomes (p. 254).

Lorion went on to differentiate between prevention and
preventive research, the former referring to programs which
demonstrably reduce both the incidence and prevalence of a
target disorder while the latter refers to the generative
accumulation and analysis of information necessary for the
subsequent delivery of prevention programs. Chassin, Presson and

Sherman (1985) have made a similar distinction between those primary programs which are based on a a clear empirical understanding of the etiology of the target behaviour and those which proceed in the absence of such knowledge. Although the latter have some advantages, the most obvious being the immediate delivery of service to those in need, they also run the risk of being harmful and forestalling the development of more effective programs. In the absence of consensus on a causal model with respect to social competence it is clear that SPS must currently be considered as preventive. While some reviewers have been pessimistic about the potential for SPS as a primary prevention strategy (Durlak, 1983, 1985; Kirschenbaum & Ordman, 1983), this seems premature pending greater quality and quantity of research.

It is also worth commenting on some of the situational factors that may have an impact on the outcome of a social competency program in an applied setting, particularly the school. On the positive side, such interventions are likely to create a classroom environment which is naturally conducive to, and supportive of, individual change and the formation of new relationships (Rose, 1983). Teachers' involvement in, or implementation of, the program may encourage their awareness of negatively biased and inflexible perceptions of particular students, improve their sensitivity to those students who may not present as behaviour problems but are nonetheless experiencing personal distress, and provide some specific class

management and counseling skills. In addition, positive change in individual students can improve the reciprocal teacher-child relationship, given evidence that teachers prefer children who exhibit prosocial behaviour while selectively ignoring or responding negatively to those seen as incompetent (Cartledge & Milburn, 1978; Strain & Kerr, 1981). These impressions are supported by the post-treatment questionnaires completed by teachers involved in the current SPS program. Durlak (1985) has recommended more systematic investigation as well as the inclusion of teachers and parents as specific targets of intervention in order to encourage receptivity to children's change in their natural environments.

Alternatively, personnel and situational factors intrinsic to an applied setting can seriously disrupt or compromise the implementation, evaluation and continuation of a program. Community settings such as schools are dynamic, complex environments which do not readily adhere to the demands of systematic experimentation. This is not necessarily indicative of uninformed resistance to external scrutiny, but reflects justifiable practical realities and ethical realities with respect to the setting's principal mandate and the well-being of the children. Teachers may therefore be reluctant to complete time-consuming and potentially stigmatizing assessment measures, principals may be unwilling to allow the expenditure of instructional time for for involvement in a theoretically inert attention-placebo condition, and students and teachers may

transfer schools before collection of post-treatment, let alone follow-up evaluation. The current findings with respect to teacher variance in adjustment measures are illustrative of the impact of such unexpected variables. There are also a number of other examples in the literature. It will be recalled that Weissberg, Gesten, Rapkin et al. (1981) attributed deterioration on teacher's ratings for a subgroup of children to the former's discomfort with certain aspects of the intervention. Similarly, Thomsun-Rountree and Musun-Baskett (1981) found a positive correlation between teacher's program implementation skills and student change. Although this finding may simply be interpreted as reflecting rating bias, this seems unlikely given that this relationship was only evident for intermediate grades and that teachers were unaware of their own skill ratings. Political or circumstantial events may also result in the discontinuation of a program despite initial acceptance, careful evaluation and positive outcome. Tellado's (1984) experience is a case in point and led to a discussion in the literature of some of the policy and utilization issues involved in promoting the longevity of a project (Fleischer, 1984; McCorcle, 1984; Patton, 1984). Ethical and economic considerations also dictate that an applied program intrude as little as possible into the lives of participants while at the same time being powerful enough to produce meaningful change in a reasonable length of time, a delicate balancing act. Bien and Bry (1980) compared various intensities of preventive intervention within a school setting and found that only the most intense program had a greater effect than no

treatment.

A number of authors have discussed some of the natural
hazards which may be faced by any investigator attempting to
implement effective and methodologically sound research in the
"community cauldron" (Cowen, Lorion & Dorr, 1974; Cowen, 1978;
Elias, Chinsky, Larcen & Allen, 1981; Weissberg & Gesten, 1982).
Many of these are likely to be unanticipated and may only emerge
as the program nears completion and the data are examined. In an
effort to minimize their occurrence it is worth stressing the
importance of preliminary collaborative consultation with all
personnel likely to be involved with the project in order to
ensure common and realistic goals, clarify ownership of the
program and reduce possible interference with evaluation.

As a closing comment, it appears worthwhile to come full
circle and suggest that many of the preceding methodological
shortcomings and empirical inconsistencies may be attributed to
the lack of a unified theoretical framework from which to
conceptualize the nature and origins of social competence in
children. In the absence of an accepted model, it is difficult
to make definitive statements as to normal social adaptation and
even more difficult to operationally identify and intervene with
those children experiencing interpersonal difficulties. As a
point of departure there is a need for terminological
clarification. There is general consensus on the distinction
between social skills and social competence: the former being
necessary, but not sufficient, for the latter which is also

determined by demographic, situational and individual variables (Hops, 1983). Unfortunately, attempts to derive a more precise definition have tended to be either overly discrete, thus ignoring the individual, continuous and contextual nature of social functioning or too broad, thereby running the risk of encompassing all aspects of interpersonal involvement without imparting any meaningful information with respect to a particular child's adjustment and needs (Michelson, Sugai et al., 1983). It is worth noting that similar conceptual difficulties continue to be addressed in the adult social skills literature (Fiedler & Beach, 1978; McFall, 1982; Trower, 1982). In response to such concerns these authors have developed an information-processing model in which an individual's social competence is dependent upon the active decoding of interpersonal cues and demands, recognition of internal states and desired goals, execution of behavioural responses within his or her existing repertoire and adaptive monitoring of the outcome. This model gives functionally equivalent weight to cognitive, affective and behavioural dimensions without claiming primacy for one particular modality. Ideally such an approach would allow for more precise assessment of individual deficits and resulting intervention for individuals exhibiting topographically similar social performance problems.

Although less clearly explicated, a similar approach has recently been taken towards children's interpersonal functioning (Ladd, 1983; Meichenbaum & Asarnow, 1979; Rathjen, 1980; Rubin &

Krasnor, 1983). Although not denying the importance of specific motoric skills, these authors have suggested that the emphasis on overt social behaviour has obscured the important role of cognitive processes including situational inferences, attributional style, outcome expectancies and personal values. Perhaps the most comprehensive attempt to provide a framework which integrates both theoretical and applied aspects of children's social competence is that of Ladd and Mize (1983). These authors argue that the failure to exhibit interpersonally adaptive behaviour is a function of lack of exposure to, or failure to form cognitive representations of, normal social learning experiences. Three particular types of deficits may result: inadequate knowledge of appropriate social goals, strategies or contextual cues; the absence of actual behavioural abilities; or a lack of effective self-monitoring and readjustment of effort. These, in turn, suggest that the objectives of comprehensive intervention should include the enhancement of skill concepts, the promotion of skillful performance and the fostering of skill maintenance and generalization when confronted with obstacles or novel situations. Current SPS interventions are criticized by Ladd and Mize for, at best (e.g. Weissberg, Gesten, Rapkin et al., 1981), fulfilling only the first of these treatment objectives. This may well be justified given previously noted comments with respect to the lack of opportunity for applied practice and the equivocal evidence of behavioural change observed in SPS programs (Rickel et al., 1983). Nonetheless this model does seem

to be concordant with the underlying ICPS assumptions in terms of the emphasis on the identification of problematic situations, selection of alternative plans of action and evaluation of potential consequences.

In conclusion, the development of a unified paradigm which will adequately explain the evolution of social competence in children will require the integration of such theoretical speculation with empirical findings. Although the ICPS approach continues to be promising, this likely represents only one aspect of a comprehensive model which must also incorporate behavioural and situational components within a developmental framework. Despite the lack of conceptual agreement, discontinuation of intervention research seems inadvisable given the immediate and long-term implications of interpersonal inadequacy and the potential loss of important findings from systematic program evaluations. Rather, it is likely that progress in this area will only develop when theoretical models and applied research are combined.

APPENDIX A

Sample Parental Consent Form

, Date

Dear Parents,

Our school has been selected by the Vancouver School Board for the school year 1984 to participate in a project which proved to be exceptionally successful in four of Vancouver's elementary schools last year. The project was well received by parents, students, principals and administrators.

Over a fourteen week period, some students will receive problem solving instruction where they will be taught how to deal with common social situations. Classes will be held three times per week as part of the regular curriculum.

The students in (Teacher's name) class will be asked to complete a questionnaire. The parents and classroom teachers will be given separate questionnaires to fill out to determine how children behave at home and school. At the end of the instructional period we will evaluate the programme. The results of the evaluation will help our school to plan better programmes for your child.

Please complete the enclosed form, sign the permission slip below and return them to the school with your child. Please return all the pages together.

Please do not put your name or your child's name on the questionnaires to ensure confidentiality.

If you have any questions about this project please feel free to phone the principal at the school.

Truly yours,

(Name of Principal)

Please return by_____

I request that my child _____ participate in the project. I understand that I have the right to withdraw my child from this project at any time if so desired.

Signature of Parent or Guardian: _____

Date: _____

EVALUATION INSTRUMENTS USED '. THE CURRENT RESEARCH

Problem Solving Abilities Scale

WHAT I'M LIKE

Name _____   Grade _____

Teacher _____   School _____

Directions: Circle the words in capitals for each sentence below to make it
true for you. There are no right or wrong answers. Example:

        I   (LIKE)   (DON'T LIKE)   baseball.

1. It's (HARD)   (NOT HARD)   to know what other people are feeling.

2. I   (CAN)   (CAN'T)   get my own way if I keep on trying.

3. If I'm in trouble with someone I   (ALWAYS)   (SOMETIMES)   do the very
   first thing I think of to make things better.

4. If I'm upset I usually   (KNOW)   (DON'T KNOW)   why.

5. If another kid in my class doesn't like me I   (CAN DO SOMETING)
   (CAN'T DO ANYTHING)   about it.

6. When I'm in trouble there is usually   (ONLY ONE WAY)   (MORE THAN ONE WAY)
   to make things okay.

7. If a kid my age decided to fight me there   (IS)   (ISN'T)   a lot I
   could do to stop them.

8. If another kid bothers me in class I   (DON'T GO)   (GO)   to the teacher.

9. If something is hard for me to do I   (STOP)   (DON'T STOP) doing it.

10. If another kid teases me I   (DON't KNOW)   (KNOW)   what to do about it.

11. It's   (EASY)   (NOT EASY)   for me to make friends.

12. I   (GET)   (DON'T GET)   into fights with other kids.

Children's Action Tendency Scale

School _____   Name _____

Teacher _____   Grade _____

Directions: Listed below are some things that could happen to you. Read each one carefully. Look at the pairs of sentences below it. In the first pair of sentences pick the one that is closest to what you would do and circle the letter beside it (a or b). Now read the next pair of sentences and circle the letter beside the one you would do (this may be the same or different than before). Do the same with the last two sentences. Remember to answer every question and pick the one sentence from each pair that is closest to what you would do, not what you think you should do.

1. You're playing a game with your friends. You try your very best but you keep making mistakes. Your friends start teasing you and calling you names. What would you do?

   (a) Quit the game and come home. OR

   (b) Punch the kid who's teasing me the most.

   (a) Tell them to stop because they wouldn't like it if I did it to them. OR

   (b) Quit the game and come home.

   (a) Punch the kid who's teasing me the most. OR

   (b) Tell them to stop because they wouldn't like it if I did it to them.

2. You and a friend are playing in your house. Your friend makes a big mess, but your parents blame you and punish you. What would you do?

        (a) Clean up the mess. OR

        (b) Ask my friend to help me clean up the mess.

        (a) Refuse to talk to or listen to my parents the next day. OR

        (b) Clean up the mess.

        (a) Ask my friend to help me clean up the mess. OR

        (b) Refuse to talk to or listen to my parents the next day.

3. One morning before class, a friend comes over to you and asks if they can copy your homework. They tell you that if you don't give them your answers, they'll tell everyone that you're really mean. What would you do?

        (a) Give them the answers. OR

        (b) Tell them to do their own work.

        (a) Tell them that I'll tell everyone they're a cheater. OR

        (b) Give them the answers.

        (a) Tell them to do their own work. OR

        (b) Tell them that I'll tell everyone they're a cheater.

4. You're standing in line for a drink of water. A kid your age and size walks over and just shoves you out of line. What <u>would</u> you do?

  (a) Push the kid back out of line. OR

  (b) Tell them, "You've no right to do that."

  (a) I'd go to the end of the line. OR

  (b) Push the kid back out of line.

  (a) Tell them, "You've no right to do that." OR

  (b) I'd go to the end of the line.

5. You lend to a friend your favorite book. A few days later it is returned but some of the pages are torn and the cover is dirty and bent out of shape. What <u>would</u> you do?

  (a) Ask my friend, "How did it happen?" OR

  (b) Ignore it.

  (a) Call the kid names. OR

  (b) Ask my friend, "How did it happen?"

  (a) Ignore it. OR

  (b) Call the kid names.

6. You're coming out of school. A kid who is smaller and younger than you are throws a snowball right at your head. What would you do?

    (a) Beat the kid up. OR

    (b) Ignore it.

    (a) Tell the kid that throwing at someone's head is very dangerous. OR

    (b) Beat the kid up.

    (a) Ignore it. OR

    (b) Tell the kid that throwing at someone's head is very dangerous.

7. You see some kids playing a game. You walk over and ask if you can join. They tell you that you can't play with them because you're not good enough. What would you do?

    (a) Walk away, feeling hurt. OR

    (b) Interfere with their game so that they won't be able to play.

    (a) Ask them to give me a chance. OR

    (b) Walk away, feeling hurt.

    (a) Interfere with their game so that they won't be able to play. OR

    (b) Ask them to give me a chance.

8. You're watching a really terrific show on television.   In the middle

of the show, your parents tell you that it's time for bed and turn off

the television. What would you do?

(a) Scream at them, "I don't want to!" OR

(b) Promise to go to bed early tomorrow night if they let me stay
     up late tonight.

(a) Start crying. OR

(b) Scream at them, "I don't want to!"

(a) Promise to go to bed early tomorrow night if they let me stay
     up late tonight. OR

(b) Start crying.

9. You're having lunch in the cafeteria. Your friend has a big bag of

delicious chololates for dessert. You ask if you can have just one, but

your friend says, "No." What would you do?

(a) Offer to trade something of mine for the chocolate. OR

(b) Call the kid mean and selfish.

(a) Forget about it and continue eating my lunch. OR

(b) Offer to trade something of mine for the chocolate

(a) Call the kid mean and selfish. OR

(b) Forget about it and continue eating my lunch.

152

10. A kid in your class brags that they're much smarter than you. However, you know for sure that the kid is wrong and that really you're smarter. What would you do?

    (a) Tell the kid to shut up. OR

    (b) Suggest that we ask each other questions to find out who is smarter.

    (a) Ignore the kid and just walk away. OR

    (b) Tell the kid to shut up.

    (a) Suggest that we ask each other questions to find out who is smarter. OR

    (b) Ignore the kid and just walk away.

11. You and another kid are playing a game. The winner of the game will win a nice prize. You try really hard, but lose by just one point. What would you do?

    (a) Tell the kid that they cheated. OR

    (b) Practice, so I'll win the next time.

    (a) Go home and cry. OR

    (b) Tell the kid that they cheated.

    (a) Practice, so I'll win the next time. OR

    (b) Go home and cry.

12. One of your parents does something which really bugs you. They know that it bugs you, but they just ignore how you feel and keep doing it anyway. What would you do?

    (a) Try to ignore it. OR

    (b) Tell them that they're bugging me.

    (a) Get back at them by doing something that bugs them. OR

    (b) Try to ignore it.

    (a) Tell them that they're bugging me. OR

    (b) Get back at them by doing something that bugs them.

13. You're playing with a friend in your house and you're making a lot of noise. Your parents get really angry and start yelling at you for making so much noise. What would you do?

    (a) Tell them, "I'm sorry, but I can't play the game without making noise." OR

    (b) Ignore their yelling and continue to make noise.

    (a) Find something else to do. OR

    (b) Tell them, "I'm sorry, but I can't play the game without making noise."

    (a) Ignore their yelling and continue to make noise. OR

    (b) Find something else to do.

Self Efficacy Scale for Children

Name _____   Grade _____

Teacher _____   School _____

Directions: Listed below are a number of things that could happen to you.
Please show how sure you are of being able to do what is asked of
you, if you tried your best, by circling the number above your
answer. There are no right or wrong answers.

1. How sure are you that you could start to talk with someone your age whom
you have just met?

1	2	3	4	5
Not sure at all	Probably not	Maybe	Probably	Really sure

2. Someone your age wants you to do something that you do not want to do.
How sure are you that you could tell them you do not want to do it?

1	2	3	4	5
Not sure at all	Probably not	Maybe	Probably	Really sure

3. Someone your age does a good job at something. How sure are you that you
could tell them they did a good job?

1	2	3	4	5
Not sure at all	Probably not	Maybe	Probably	Really sure

4. Someone your age does something you don't like. How sure are you that you
could tell them you don't like it and ask them to change what they are
doing?

1	2	3	4	5
Not sure at all	Probably not	Maybe	Probably	Really sure

5. Someone your age gives you a compliment. How sure are you that you could
accept the compliment and say "thanks"?

1	2	3	4	5
Not sure at all	Probably not	Maybe	Probably	Really sure

6. Someone your age is playing with something and you would like to play
with it also. How sure are you that you could ask them to play with it?

1	2	3	4	5
Not sure at all	Probably not	Maybe	Probably	Really sure

7. How sure are you that you could get other children your age to play with
you when you want them to?

1	2	3	4	5
Not sure at all	Probably not	Maybe	Probably	Really sure

8. How sure are you that you could get other children your age to work with
you on a class project when you want them to?

1	2	3	4	5
Not sure at all	Probably not	Maybe	Probably	Really sure

9. How sure are you that you could get other children your age to be your
friend?

1	2	3	4	5
Not sure at all	Probably not	Maybe	Probably	Really sure

HOW I FEEL QUESTIONNAIRE

Name _____   Grade _____

Teacher _____   School _____

Directions: Below are sentences which boys and girls use to tell how they feel.
Read each one carefully and decide if it is hardly-ever, sometimes or often true
for you. Then put a mark in the box that describes you the best. There are no
right or wrong answers. Remember, read each sentence and pick the word that best
fits how you feel most of the time. Example:

I watch television . . . .   [ ] hardly-ever [ ] sometimes [ ] often

1.	I worry about making mistakes	☐	hardly-ever	☐	sometimes	☐	often
2.	I feel like crying	☐	hardly-ever	☐	sometimes	☐	often
3.	I feel unhappy	☐	hardly-ever	☐	sometimes	☐	often
4.	I have trouble making up my mind	☐	hardly-ever	☐	sometimes	☐	often
5.	It is difficult for me to face my problems	☐	hardly-ever	☐	sometimes	☐	often
6.	I worry too much	☐	hardly-ever	☐	sometimes	☐	often
7.	I get upset at home	☐	hardly-ever	☐	sometimes	☐	often
8.	I am shy	☐	hardly-ever	☐	sometimes	☐	often
9.	I feel troubled	☐	hardly-ever	☐	sometimes	☐	often
10.	Unimportant thoughts run through my mind and bother me	☐	hardly-ever	☐	sometimes	☐	often
11.	I worry about school	☐	hardly-ever	☐	sometimes	☐	often
12.	I have trouble deciding what to do	☐	hardly-ever	☐	sometimes	☐	often
13.	I notice my heart beats fast	☐	hardly-ever	☐	sometimes	☐	often
14.	I am secretly afraid	☐	hardly-ever	☐	sometimes	☐	often
15.	I worry about my parents	☐	hardly-ever	☐	sometimes	☐	often
16.	My hands get sweaty	☐	hardly-ever	☐	sometimes	☐	often
17.	I worry about things that may happen	☐	hardly-ever	☐	sometimes	☐	often
18.	It is hard for me to fall asleep at night	☐	hardly-ever	☐	sometimes	☐	often
19.	I get a funny feeling in my stomach	☐	hardly-ever	☐	sometimes	☐	often
20.	I worry about what others think of me	☐	hardly-ever	☐	sometimes	☐	often

Self-Control Rating Scale

Child's Name _____   Division _____

Rater _____   Sex: M F   School _____

Please rate this child according to the descriptions below by circling the appropriate number. The underlined 4 in the center of each row represents where the average child would fall on this item. Please do not hesitate to use the entire range of possible ratings.

1. When the child promises to do something, can you count on him or her to do it?

    1 2 3 4 5 6 7
    always   never

2. Does the child butt into games or activities even when he or she hasn't been invited?

    1 2 3 4 5 6 7
    never   often

3. Can the child deliberately calm down when he or she is excited or all wound up?

    1 2 3 4 5 6 7
    yes   no

4. Is the quality of the child's work all about the same or does it vary a lot?

    1 2 3 4 5 6 7
    same   varies

5. Does the child work for long-range goals?

    1 2 3 4 5 6 7
    yes   no

6. When the child asks a question, does he or she wait for an answer, or jump to something else (e.g., a new question) before waiting for an answer?

    1 2 3 4 5 6 7
    waits   jumps

7. Does the child interrupt inappropriately in conversations with peers, or wait his or her turn to speak?

    1 2 3 4 5 6 7
    waits   interrupts

8. Does the child stick to what he or she is doing until he or she is finished with it?

    1 2 3 4 5 6 7
    yes   no

9. Does the child follow the instructions of responsible adults?

    1 2 3 4 5 6 7
    always   never

10. Does the child have to have everything right away?

    1 2 3 4 5 6 7
    no   yes

11. When the child has to wait in line, does he or she do so patiently?

    1 2 3 4 5 6 7
    yes   no

12. Does the child sit still?

    1 2 3 4 5 6 7
    yes   no

13. Can the child follow suggestions of others in group projects, or does he or she insist on imposing his or her own ideas?

    1 2 3 4 5 6 7
    able to follow   imposes

14. Does the child have to be reminded several times to do something before he or she does it?

    1 2 3 4 5 6 7
    never   always

15. When reprimanded, does the child answer back inappropriately?

    1 2 3 4 5 6 7
    never   always

16. Is the child accident prone?

    1 2 3 4 5 6 7
    no   yes

17. Does the child neglect or forget regular chores or tasks?

    1 2 3 4 5 6 7
    never   always

18. Are there days when the child seems in-
    capable of settling down to work?

    1   2   3   <u>4</u>   5   6   7
    never   often

19. Would the child more likely grab a smaller
    toy today or wait for a larger toy to-
    morrow, if given the choice?

    1   2   3   <u>4</u>   5   6   7
    wait   grab

20. Does the child grab for the belongings of
    others?

    1   2   3   <u>4</u>   5   6   7
    never   often

21. Does the child bother others when they're
    trying to do things?

    1   2   3   <u>4</u>   5   6   7
    no   yes

22. Does the child break basic rules?

    1   2   3   <u>4</u>   5   6   7
    never   always

23. Does the child watch where he or she is
    going?

    1   2   3   <u>4</u>   5   6   7
    always   never

24. In answering questions, does the child
    give one thoughtful answer, or blurt our
    several answers all at once?

    1   2   3   <u>4</u>   5   6   7
    one answer   several

25. Is the child easily distracted from his
    or her work or chores?

    1   2   3   <u>4</u>   5   6   7
    no   yes

26. Would you describe this child more as
    careful or careless?

    1   2   3   <u>4</u>   5   6   7
    careful   careless

27. Does the child play well with peers
    (follows rules, waits turn, cooperates)?

    1   2   3   <u>4</u>   5   6   7
    yes   no

28. Does the child jump or switch from activi-
    ty to activity rather than sticking to one
    thing at a time?

    1   2   3   <u>4</u>   5   6   7
    sticks to one   switches

29. If a task is at first too difficult for
    the child, will he or she get frustrated
    and quit, or first seek help with the
    problem?

    1   2   3   <u>4</u>   5   6   7
    seek help   quit

30. Does the child disrup games?

    1   2   3   <u>4</u>   5   6   7
    never   often

31. Does the child think before he or she
    acts?

    1   2   3   <u>4</u>   5   6   7
    always   never

32. If the child paid more attention to his
    or her work, do you think he or she would
    do much better than at present?

    1   2   3   <u>4</u>   5   6   7
    no   yes

33. Does the child do too many things at once,
    or does he or she concentrate on one thing
    at a time?

    1   2   3   <u>4</u>   5   6   7
    one thing   too many

CHILD BEHAVIOUR RATING SCALE

Child's Name _____   School _____

Teacher's Name _____   Div. _____

Section I: Listed below are specific behaviour and adaptation problems which some childrer. experience. Please rate each item by circling the appropriate number.

Key:	1	2	3	4	5
	not a problem	very mild problem	moderate problem	serious problem	very serious problem

1. Disruptive in class   1   2   3   4   5

2. Talks out of turn, disturbs others while they are
   working   1   2   3   4   5

3. Overly aggressive to peers (fights, is overbearing,
   belligerent)   1   2   3   4   5

4. Impulsive, is unable to delay   1   2   3   4   5

5. Shy, timid   1   2   3   4   5

6. Unable to express feelings   1   2   3   4   5

7. Worried, frightened, tense   1   2   3   4   5

8. Lacks self-confidence   1   2   3   4   5

9. Reacts poorly to disappointment   1   2   3   4   5

10. Depends too much on teacher to solve problems   1   2   3   4   5

11. Has difficulty learning   1   2   3   4   5

SECTION II: Because we are interested in identifying children's strengths or compe-
tencies we have developed a list of items identifying children's positive resources.
Please rate each item by circling the appropriate number.

Key:	1	2	3	4	5
	not at all	a little	moderately well	well	very well

1. Feels good about himself or herself   1   2   3   4   5

2. Shares things with others   1   2   3   4   5

3. Can accept things not going his/her way   1   2   3   4   5

4. Defends his/her views under group pressure   1   2   3   4   5

5.	Resolves peer problems on his/her own	1	2	3	4	5
6.	Copes well with failure	1	2	3	4	5
7.	Is able to question rules that seem unfair or unclear to him/her	1	2	3	4	5
8.	Anger, when displayed, is justified	1	2	3	4	5
9.	Expresses ideas willingly	1	2	3	4	5
10.	Well liked by classmates	1	2	3	4	5
11.	Makes friends easily	1	2	3	4	5
12.	Thinks before acting	1	2	3	4	5
13.	Accepts legitimate imposed limits	1	2	3	4	5
14.	Expresses needs and feelings appropriately	1	2	3	4	5
15.	Functions well in unstructured situations	1	2	3	4	5

SECTION III: From your experience with this child, please circle the number where he/she would like on the following dimensions.

A.

Child seems difficult to like

1	2	3	4	5	6	7

Child seems easy to like

B.

Child has significant school adjustment problems

1	2	3	4	5	6	7

Child has no school adjustment problems

Parent Behavior Rating Scale

All children, at one time or another, run into some difficulties and problems as part of the process of growing up. These are not always the same for different times. We are concerned primarily with your child's behavior as you have seen it during the past month.

Listed below are a series of difficulties that young children often show. Many of these may not apply at all to your child's behavior. On the other hand, many of them may be quite descriptive of his or her behavior during the past month.

For each problem which _does_ apply to your child, please indicate the degree to which it applies by placing a check (✓) in the appropriate box to the right of the YES section. If it does _not_ apply, check only the NO box.

For example:

Behavior

	very mildly	moderately	strongly	very strongly
Enjoys TV (cowboys, cartoons, comedy, news, travel, other)	YES —	✓	—	—
	NO —			

Does it apply? if YES to what extent?

Behavior:

		very mildly	moderately	strongly	very strongly
1.	Eating trouble (eats too much, eats too little, has fads, eats only certain foods, other)	YES —	—	—	—
		NO —			
2.	Trouble sleeping (won't go to bed, awakens often, fights sleep, has nightmares, other)	YES —	—	—	—
		NO —			
3.	Stomach trouble (diarrhea, constipation irregularity, vomiting, nervous stomach, other)	YES —	—	—	—
		NO —			
4.	Is bothered by headaches, frequent colds, allergies, asthma, rashes, other)	YES —	—	—	—
		NO —			
5.	Is timid, bashful, or retiring with children	YES —	—	—	—
		NO —			
6.	Is timid, bashful, or retiring with grownups	YES —	—	—	—
		NO —			
7.	Bullies, argues, or fights children	YES —	—	—	—
		NO —			
8.	Is "fresh", talks back, argues with adults	YES —	—	—	—
		NO —			

161

9.	Bites nails, sucks thumb, chews blanket	YES	—	—	—	—
		NO —				
10.	Is overactive or restless	YES	—	—	—	—
		NO —				
11.	Daydreams	YES	—	—	—	—
		NO —				
12.	Has temper tantrums	YES	—	—	—	—
		NO —				
13.	Crying	YES	—	—	—	—
		NO —				
14.	Tears up or breaks things	YES	—	—	—	—
		NO —				
15.	Wets bed	YES	—	—	—	—
		NO —				
16.	Depends on others for help	YES	—	—	—	—
		NO —				
17.	Gets upset by criticism	YES	—	—	—	—
		NO —				
18.	Is fearful of other children or adults	YES	—	—	—	—
		NO —				
19.	Stays by him/herself	YES	—	—	—	—
		NO —				
20.	Seeks attention	YES	—	—	—	—
		NO —				
21.	Criticizes others	YES	—	—	—	—
		NO —				
22.	Reacts poorly to failures	YES	—	—	—	—
		NO —				
23.	Disrupts household routines	YES	—	—	—	—
		NO —				

Teacher Evaluation Questionnaire

Record of Evaluation

In order to evaluate the effectiveness of the social problem-solving project, we are now completing, I would very much appreciate your comments, suggestions and recommendations for future programs. I will be meeting with Health Department personnel in the near future, and would like to present your feelings to them. Please use as much additional space as you need.

1. Program Content (Organization, Relevance, Conceptual level). Please circle.

1	2	3	4	5	6	7
very poor			neutral			very well organized

   Comments:

2. Program Presentation (Clarity, Enthusiasm, Classroom Management). Please circle.

1	2	3	4	5	6	7
very poor			neutral			very well presented

   Comments:

3. How interested would you be in having such a program established as part of the regular curriculum? (with the possibility of modifications in accordance with your recommendations)

1	2	3	4	5
not at all interested	little interest	some interest	strong interest	definite interest

   Comments:

4. Would you prefer to:

   ___ (a) run the program yourself

   ___ (b) run the program with some assistance from school
   or health department personnel

   ___ (c) see the program completely implemented by School Board or
   Health Department personnel?

5. Comments:

6. Positive Comments.....(general observations on effectiveness of program,
   ......particular examples of children who have apparently benefitted,
   ......effect on learning environment, on class management)

7. Negative Comments........(disruption to classroom routine, Exacerbation of
   misbehaviours, administrative difficulties)

8. What type of child do you think benefitted the most from the PASS program?
   (For example: the aggressive, impulsive child or the shy, withdrawn child).

9. Additional Comments or Observations:

164

Descriptive Pre- and Post-Treatment Statistics for each Variable

Variable	Condition	Pre-Treatment		Post-Treatment	
		Mean	Standard Deviation	Mean	Standard Deviation
Parent Rating	Treatment	36.6	8.7	35.4	8.8
	Control	37.4	11.7	38.7	13.8
Self Control	Treatment	104.7	44.7	92.4	42.6
	Control	109.3	40.4	99.3	47.3
Subjective Aggression	Treatment	6.8	4.9	5.2	3.9
	Control	7.1	5.4	8.9	6.0
Subjective Assertion	Treatment	20.0	2.4	22.4	2.6
	Control	19.9	3.2	18.9	3.8
Subjective Submission	Treatment	12.1	4.1	11.4	3.1
	Control	12.1	3.4	11.1	4.1
Problem Solving	Treatment	7.2	1.9	9.0	1.7
	Control	6.9	1.7	6.6	2.0
Self Efficacy	Treatment	30.1	4.5	33.6	5.3
	Control	31.3	6.2	30.5	5.4
Subjective Anxiety	Treatment	36.6	6.2	34.6	6.5
	Control	38.8	5.9	36.7	6.8
Acting Out	Treatment	7.7	4.3	6.7	3.4
	Control	7.8	4.2	7.7	4.0
Shy Anxious	Treatment	6.0	2.7	5.3	2.0
	Control	5.8	2.7	5.7	2.8
Learning Problems	Treatment	4.2	2.2	3.4	1.5
	Control	3.7	1.7	3.6	1.8
Total Problems	Treatment	20.8	7.8	18.0	6.1
	Control	20.1	7.7	19.7	8.1
Frustration Tolerance	Treatment	20.4	5.0	23.8	5.6
	Control	23.1	5.4	24.5	5.5
Gutsy Assertive	Treatment	9.2	2.6	10.9	2.5
	Control	10.7	2.2	11.3	2.8

Variable	Condition	Pre-Treatment		Post-Treatment	
		Mean	Standard Deviation	Mean	Standard Deviation
Sociability	Treatment	9.0	2.3	10.0	2.7
	Control	10.3	2.3	10.7	2.6
Total Competence	Treatment	47.1	10.2	54.1	11.6
	Control	54.0	10.5	56.3	11.7
Likability	Treatment	5.6	1.2	5.7	1.3
	Control	6.0	1.1	6.0	1.2
Adjustment	Treatment	5.0	1.7	5.3	1.6
	Control	5.5	1.5	5.4	1.3

Unrotated Factor Loadings for Seven Factor Solution of Principle
Components Analysis

Variable	Factor						
	1	2	3	4	5	6	7
Age	.014	.172	-.057	-.037	.727	.019	.591
Sex	.148	.528	-.163	-.047	-.118	-.131	.152
Parent Rating	-.200	-.161	.150	.007	.163	.794	-.290
Self Control	-.776	.195	.397	-.097	-.006	-.063	.021
Subjective Aggression	-.397	-.812	-.360	-.096	.008	-.064	.114
Subjective Assertion	.323	.503	.259	.328	.230	.251	-.051
Subjective Submission	.295	.719	.286	-.129	-.209	-.098	-.124
Self Efficacy	.067	-.155	.250	.429	.487	-.407	-.385
Subjective Anxiety	-.103	.045	.102	-.561	.385	-.272	-.469
Acting Out	-.650	-.089	.634	-.152	-.074	-.048	.077
Shy Anxious	-.557	.381	-.484	.257	.134	.018	-.124
Learning Problems	-.790	.148	.016	-.009	.206	.037	.124
Total Problems	-.892	.146	.238	.013	.073	-.021	.044
Frustration Tolerance	.899	.028	-.154	.028	.101	.048	.079

Variable	Factor						
	1	2	3	4	5	6	7
Gutsy Assertive	.623	-.234	.554	-.220	.048	.028	.122
Sociability	.835	-.162	.228	-.107	.058	-.087	.054
Total Competence	.936	-.108	.126	-.074	.065	.009	.063
Likability	.740	-.170	.039	.031	.151	.027	-.091
Adjustment	.830	.070	-.197	.047	-.045	.051	-.089
% Variance	7.194	2.155	1.718	1.424	1.214	1.040	0.956

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171

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